.

NOISE IMPACT ANALYSIS

LAKESHORE DRIVE – 10 ACRES RESIDENTIAL PROJECT

CITY OF LAKE ELSINORE

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ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Lake Elsinore
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
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
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 Lakeshore Drive – 10 Acre 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 at 16540 Lakeshore Drive in the City of Lake Elsinore (City), which is at the southwest side of the intersection of Lakeshore Drive and Gunnerson Street in the northwestern portion of the City. The approximately 10.29-acre project site is currently vacant and is bounded by Lakeshore Drive to the northeast, a mobile home park, preschool and retail commercial uses to the northwest, retail commercial and two-story single-family residences to the southeast, and two story townhome residences to the southwest. The project study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are mobile homes and a preschool located as near as 10 feet northwest of the project site, single-family homes located as near as 14 feet southeast of the project site, and townhomes located as near as 35 feet southwest of the project site. The nearest school is Machado Elementary School, which is located as near as 680 feet southwest of the project site.

1.3 Proposed Project Description

The proposed project would consist of developing the project site with 140 two-story duplex condominium residences, parking, recreation areas, and the associated amenities and infrastructure. The proposed project would provide garage, driveway, and open guest parking. Each residence would have a two-car garage. The project would also provide 12 driveway spaces and 56 open guest spaces for residences and visitors. In total the project would provide 348 spaces, which equates to 2.49 parking spaces per units. The project includes development of a 0.86-acre recreation area and a recreation center on the site. The 0.86-acre open space recreation area would include playground equipment, swing set, barbeques, overhead trellis, turf areas, seating, sidewalks. The recreation center would include restrooms, drinking fountains, pool and spa, shade structure, lounge chairs, table and chairs. The proposed site plan is shown in Figure 2.

The proposed Wall Plan for the proposed project is shown in Figure 3. As shown in Figure 3, there is currently concrete masonry unit (cmu) walls that are approximately 6 feet high, along the southeast side, adjacent to the single-family homes and northwest side, adjacent to the mobile homes. Figure 3, shows that a 6 foot high wall will be constructed on the northwest side adjacent to the preschool and would extend to the northeast side, adjacent to Lakeshore Drive and would run the length of the northeast side, other than the opening for the driveway.

1.4 Executive Summary

Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the City and State of California (State).

City of Lake Elsinore Noise Regulations

The following lists the noise and vibration regulations from the *Lake Elsinore Municipal Code,* May 10, 2022.

- Section 17.176.080(A) – Maximum Permissible Sound Levels;
- Section 17.176.080(F) – Construction Noise Limits; and
- Section 17.176.090(G) – Vibration Limits.

State of California Noise Regulations

The following lists the State of California noise regulations that are applicable, but not limited to the proposed project.

- California Vehicle Code Section 27200-27207 – On Road Vehicle Noise Limits
- California Vehicle Code Section 38365-38350 – Off-Road Vehicle Noise Limits

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 Recommended Measure 1 would reduce the impact to less than significant levels.

Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact.

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?

Less than significant impact.

1.5 Project Design Features Incorporated into the Proposed Project

This analysis was based on implementation of the following project design features that are either already depicted on the proposed project site plan and architectural plans or are required from City and State Regulations.

Project Design Feature 1:
The project applicant shall require the proposed six foot high cmu wall as detailed in the Wall Plan (see Figure 3) for the portion of the northwest side of the project site that is adjacent to the preschool to be constructed prior to the start of grading and other construction activities (prior to wall construction, minimal grading will be required at the location of the proposed wall).

Project Design Feature 2:
The project applicant shall provide a "windows closed" condition for each proposed townhome. A "window closed" condition requires a means of mechanical ventilation per Chapter 12, Section 1202 of the Uniform Building Code. This shall be achieved with a standard forced air conditioning and heating system with a filtered outside air intake vent for each townhome.

1.6 Recommended 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 Project Design Features 1 and 2 detailed in Section 1.5, and through implementation of the following recommended measures all noise and vibration impacts would be reduced to less than significant levels.

Recommended Measure 1:
The project applicant shall require any construction contractor that needs to use stationary construction equipment within 100 feet of any offsite sensitive receptors (homes or preschool) to place a temporary sound barrier between the stationary equipment and nearest sensitive receptors.

SOURCE: Google Maps.

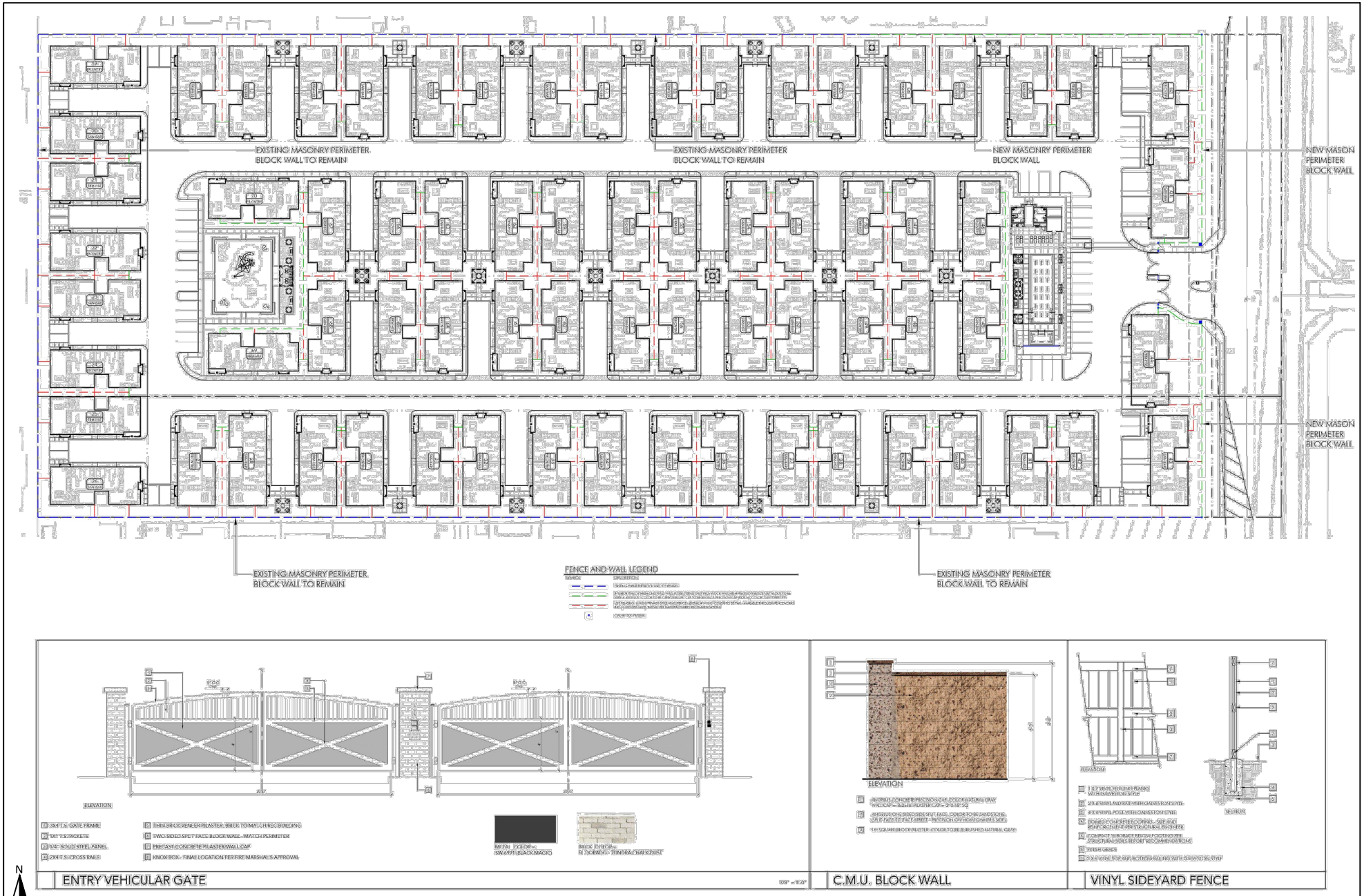
VISTA ENVIRONMENTAL

Figure 1
Project Location Map

SOURCE: Urban Arena.

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan



SOURCE: Urban Arena.

VISTA ENVIRONMENTAL

Figure 3
Proposed Wall Plan

2.0 NOISE FUNDAMENTALS

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 worst-hour traffic 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 City of Lake Elsinore relies on the Ldn 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 level of noise as the distance from the source increases. The manner in which the noise level 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) between source and receiver. 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 medium, 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 City of Lake Elsinore. 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), which regulates transit noise, 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 *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual), prepared by the FTA, September 2018, is the only guidance document from a government 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 the transportation sources, the City is restricted to regulating the 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.

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.

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.

The *Transportation- and Construction Vibration Guidance Manual*, prepared by Caltrans, April 2020, 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 continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

4.3 Local Regulations

The City of Lake Elsinore General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

City of Lake Elsinore General Plan

The following applicable goals and policies to the proposed project are from the Noise Element of the General Plan.

Goal 7 **Maintain an environment for all City residents and visitors free of unhealthy, obtrusive, or otherwise excessive noise.**

Policies:

7.1 Apply the noise standards set forth in the Lake Elsinore Noise and Land Use Compatibility Matrix (see Table B) and Interior and Exterior Noise Standards (see Table C) when considering all new development and redevelopment proposed within the City.

Table B – City of Lake Elsinore Noise and Land Use Compatibility Matrix

Land Use Categories	Uses	Day-Night Noise Level (L_{dn})						
		<55	55-60	60-65	65-70	70-75	75-80	>80
Residential	Single-Family, Duplex, Multiple-Family	A	A	B	B	C	D	D
	Mobile Homes	A	A	B	C	C	D	D
Commercial Regional District	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
Commercial Regional Village, District Special	Commercial, Retail, Bank, Restaurant, Movie Theatre	A	A	A	A	B	B	C
Commercial Industrial Institutional	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D

Land Use Categories	Uses	Day-Night Noise Level (L_{dn})						
		<55	55-60	60-65	65-70	70-75	75-80	>80
Commercial Regional Institutional Civic Center	Amphitheatre, Concert Hall, Auditorium, Meeting Hall	B	B	C	C	D	D	D
Commercial Recreation	Children's Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
Commercial General, Special Industrial Institutional	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
Institutional General	Hospital, Church, Library, Schools, Classroom	A	A	B	C	C	D	D
Open Space	Parks	A	A	A	B	C	D	D
	Golf Course, Cemeteries, Nature Centers, Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
Agriculture	Agriculture	A	A	A	A	A	A	A

Interpretation:
Zone A: Clearly Compatible. Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
Zone B: Normally Compatible. New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.
Zone C: Normally Incompatible. New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.
Zone D: Clearly Incompatible. New construction or development should generally not be undertaken.
Source: City of Lake Elsinore General Plan, 2011.

Table C – City of Lake Elsinore Interior and Exterior Noise Standards

Land Use Categories	Uses	Energy Average L_{dn}	
		Interior[(1)]	Exterior[(2)]
Residential	Single-Family, Duplex, Multiple-Family	45[(3,5)]	60
	Mobile Homes	--	60[(4)]
Commercial, Institutional	Hotel, Motel, Transient Lodging	45[(5)]	--
	Hospital, School's Classroom	45	--
	Church, Library	45	--

Interpretation:
[1] Indoor environment excluding: bathrooms, toilets, closets, corridors.
[2] Outdoor environment limited to: private yard of single-family, multi-family private patio or balcony which is served by a means of exit from inside, Mobile Home Park.

[3] Noise level requirement with closed windows. Mechanical ventilation system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of UBC.
[4] Exterior noise level should be such that interior noise level will not exceed 45 CNEL.
[5] As per California Administrative Code, Title 24, Part 6, Division T25, Chapter 1, Subchapter 1, Article 4, Section T25-28.
Source: City of Lake Elsinore General Plan, 2011.

City of Lake Elsinore Municipal Code

The Lake Elsinore Municipal Code establishes the following applicable standards related to noise.

17.112.090 Gasoline Dispensing Establishments.

The provisions of this section shall apply to all new construction, reconstruction, and addition or conversion of use for service stations and other places where motor vehicle fuels are dispensed to the public.

H. Walls. A decorative masonry wall a minimum of six feet in height shall be constructed and maintained along all interior property lines abutting residential property. Where such walls abut or are adjacent to commercial/office uses they shall be not less than five feet in height. A minimum five-foot planter shall be provided adjacent to the wall. Walls may be waived where the gasoline dispensing facility and abutting commercial or industrial use share a common driveway. Said wall shall be reduced to 36 inches within required yards adjacent to a public right-of-way.

17.176.020 Definitions.

"Vibration perception threshold" means the minimum ground- or structure-borne vibration motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observation of moving objects. The perception threshold shall be presumed to be a motion velocity of 0.01 inches per second over the range of one to 100 Hz.

17.176.060 Exterior Noise Limits.

A. Maximum Permissible Sound Levels by Receiving Land Use.

1. The noise standards for the various categories of land use identified by the Noise Control Office(r) as presented in Table 1 (see Table D) shall, unless otherwise specifically indicated, apply to all such property within a designated zone.

2. No person shall operate, or cause to be operated, any source of sound at any location within the incorporated City 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:

    a. The noise standard for that land use as specified in Table 1 for a cumulative period of more than 30 minutes in any hour; or

    b. The noise standard plus five dB for a cumulative period of more than 15 minutes in any hour; or

    c. The noise standard plus 10 dB for a cumulative period of more than five minutes in any hour; or

d. The noise standard plus 15 dB for a cumulative period of more than one minute in any hour; or

e. The noise standard plus 20 dB or the maximum measured ambient level, for any period of time.

3. If the measured ambient level differs from that permissible within any of the last four noise limit categories above, the allowable noise exposure standard shall be adjusted in five dB increments in each category as appropriate to encompass or reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

4. If the measurement location is on a boundary between two different zones, the noise level limit applicable to the lower noise zone plus six dB shall apply.

Table D – City of Lake Elsinore Exterior Noise Limits

Receiving Land Use Category	Time Period	Noise Level (dBA)
Single-Family Residential	10:00 p.m. – 7:00 a.m.	40
	7:00 a.m. – 10:00 p.m.	50
Multiple Dwelling Residential	10:00 p.m. – 7:00 a.m.	45
	7:00 a.m. – 10:00 p.m.	50
Public Space		
Limited Commercial and Office	10:00 p.m. – 7:00 a.m.	55
	7:00 a.m. – 10:00 p.m.	60
General Commercial	10:00 p.m. – 7:00 a.m.	60
	7:00 a.m. – 10:00 p.m.	65
Light Industrial	Anytime	70
Heavy Industrial	Anytime	75

Source: City of Lake Elsinore Municipal Code Section 17.176.060.

17.176.080 Prohibited acts.

No person shall unnecessarily make, continue, or cause to be made or continued, any noise disturbance. The following acts, and the causing or permitting thereof, are declared to be in violation of this chapter:

B. Using or operating for any purpose any loudspeaker, loudspeaker system, or similar device between the hours of 10:00 p.m. and 7:00 a.m., such that the sound therefrom creates a noise disturbance across a residential real property line, or at any time violates the provisions of LEMC 17.176.060(A), except for any noncommercial public speaking, public assembly or other activity for which a variance has been issued by the City.

E. 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 7:00 a.m. in such a manner as to cause a noise disturbance across a residential real property line or at any time to violate the provisions of LEMC

F. Construction/Demolition

1. 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 weekends 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 City.

2. Noise Restrictions at Affected Properties. Where technically and economically feasible, construction activities shall be conducted in such a manner the maximum noise levels at affected properties will not exceed those listed in the following schedule: (see Table E for Residential Properties)

Table E – City of Lake Elsinore Construction Noise Standards at Residential Properties

Time Interval	Type I Areas Single-Family Residential	Type II Areas Multifamily Residential	Type III Areas Semi-Residential/ Commercial
Mobile Equipment			
Daily, except Sundays and Legal Holidays 7:00 a.m. to 7:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 7:00 p.m. to 7:00 a.m. and all day Sunday and Legal Holidays	60 dBA	65 dBA	70 dBA
Stationary Equipment			
Daily, except Sundays and Legal Holidays 7:00 a.m. to 7:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, 7:00 p.m. to 7:00 a.m. and all day Sunday and Legal Holidays	50 dBA	55 dBA	60 dBA

Source: City of Lake Elsinore Municipal Code Section 17.176.080.

AT BUSINESS PROPERTIES:

Mobile Equipment

Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment:

Daily, including Sundays and Legal Holidays, all hours: maximum of 85 dBA.

Stationary Equipment

Maximum noise levels for repetitive scheduled and relatively long-term operation of stationary equipment:

Daily, including Sundays and Legal Holidays, all hours: maximum of 75 dBA.

3. 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.

G. Operating or permitting the operation of any device that creates a 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 public space or public right-of-way.

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 Lakeshore Drive that is adjacent to the east 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 approximately four to seven 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 in the vicinity of the project site. Descriptions of the noise monitoring sites are provided below in Table F and are shown in Figure 5. 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 10:40 a.m. on Thursday, July 14, 2022 and 10:45 a.m. on Friday, July 15, 2022. At the start of the noise measurements, the sky was clear (no clouds), the temperature was 88 degrees Fahrenheit, the humidity was 35 percent, barometric pressure was 28.51 inches of mercury, and the wind was blowing around two miles per hour. Overnight, the temperature dropped to 67 degrees Fahrenheit and the humidity peaked at 77 percent. At the conclusion of the noise measurements, the sky was clear, the temperature was 92 degrees Fahrenheit, the humidity was 38 percent, barometric pressure was 28.52 inches of mercury, and the wind was blowing around three miles per hour.

5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table F. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 1-hour intervals. Table F also shows the L_{eq}, L_{max}, and CNEL, based on the entire measurement time. The CNEL was calculated through use of Equation 2-23 from *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (TeNS), prepared by Caltrans, September 2013. The noise monitoring data printouts are included in Appendix B. Figure 6 shows a graph of the 24-hour noise measurements.

Table F – Existing (Ambient) Noise Measurement Results

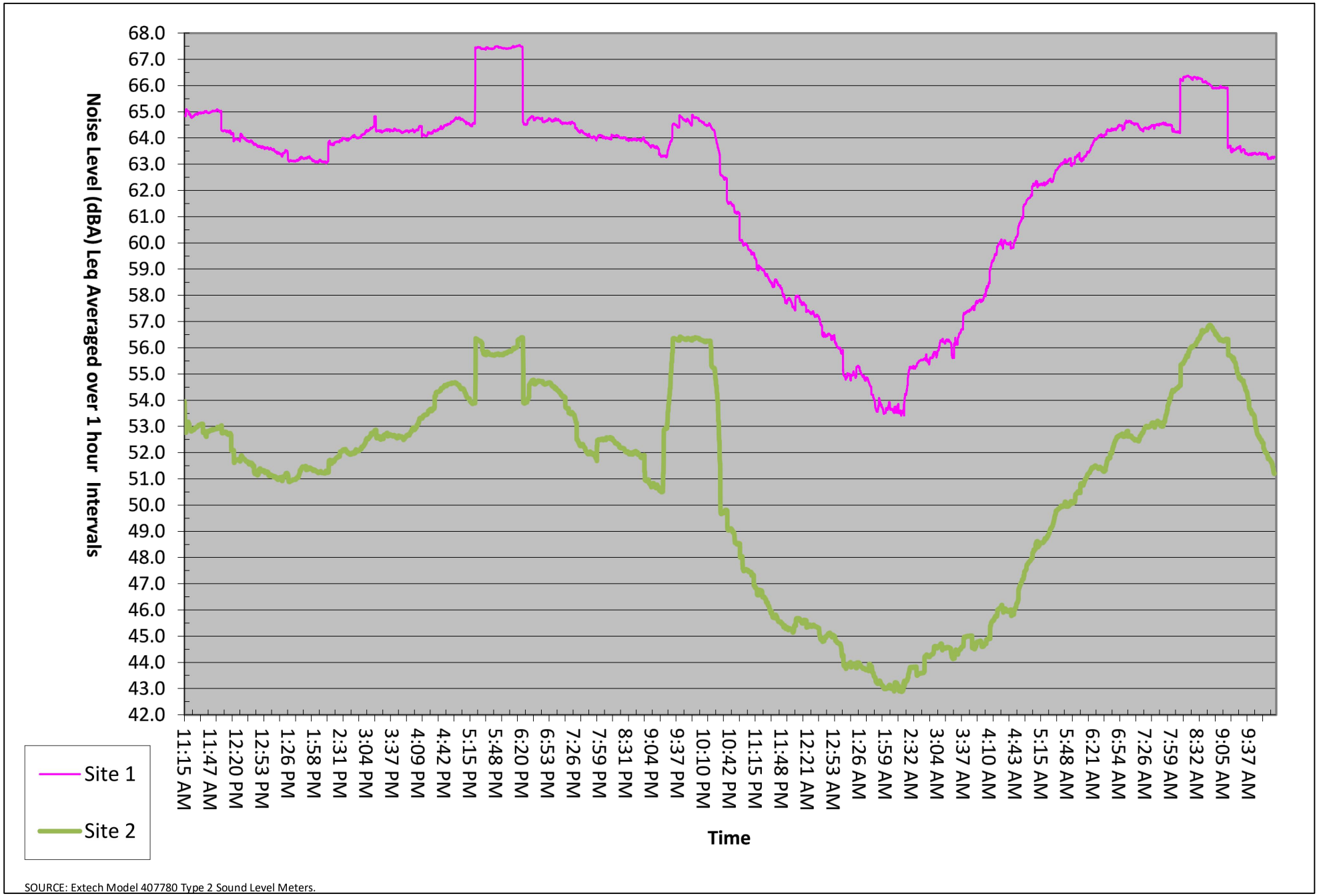
Site No.	Site Description	Average (dBA L_{eq})	Maximum (dBA L_{max})	(dBA $L_{eq\ 1\text{-}hour}$/Time) Minimum	(dBA $L_{eq\ 1\text{-}hour}$/Time) Maximum	Average (dBA CNEL)
1	Located on a sign post on the northeastern portion of the project site, approximately 80 feet southwest of Lakeshore Drive centerline.	63.4	92.3	53.4 2:18 a.m.	67.5 5:21 p.m.	68.1
2	Located on a tree on the northwestern portion of the project site, approximately 30 feet southeast of the preschool.	52.3	77.9	42.9 2:09 a.m.	56.9 8:47 a.m.	56.4

Source: Noise measurements were taken with two Extech Model 407780 Type 2 sound level meters from Thursday, July 14, 2022 to Friday, July 15, 2022.

SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 4
Field Noise Monitoring Locations



SOURCE: Extech Model 407780 Type 2 Sound Level Meters.

VISTA ENVIRONMENTAL

Figure 5
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 that was obtained from the *Air Quality, Energy, and Greenhouse Gas Impact Analysis Lakeshore Drive – 10 Acres Residential Project* (Air Quality Analysis), prepared by Vista Environmental, July 20, 2022.

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])
Site Preparation				
Rubber Tired Dozers	3	40	85	82
Crawler Tractors	4	40	84	N/A
Grading				
Excavators	2	40	85	81
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Scraper	2	40	85	84
Crawler Tractors	2	40	84	N/A
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	3	40	85	83
Generator	1	50	82	81
Tractor	1	40	84	N/A
Front End Loader	1	40	80	79
Backhoe	1	40	80	78
Welder	1	40	73	74
Paving				
Paver	2	50	85	77
Paving Equipment	2	50	85	77
Roller	2	20	85	80
Architectural Coating				
Air Compressor	1	40	80	78

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

Table G 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, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two nosiest pieces of equipment as detailed in the FTA Manual. The RCNM model printouts are provided in Appendix C.

6.2 Operations-Related Noise

FHWA Model Methodology

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 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). The following section provides a discussion of the software and modeling input parameters used in this analysis and a discussion of the resultant existing noise model.

FHWA Model Traffic Noise Prediction Model Inputs

The roadway parameters used for this study are presented in Table H. The roadway classifications are based on the City'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 residence. Since the study area is located in a suburban environment and landscaping or natural vegetation exists along the sides of the analyzed roads, soft site conditions were modeled.

Table H – FHWA Model Roadway Parameters

Roadway	Segment	General Plan Classification	Vehicle Speed (MPH)	Distance to Nearest Receptor[1] (feet)
Lakeshore Drive	West of Machado Street	Urban Arterial	40	60
Lakeshore Drive	West of Gunnerson Street	Urban Arterial	40	70
Lakeshore Drive	East of Gunnerson Street	Urban Arterial	40	60
Lakeshore Drive	East of Highway 74	Secondary	40	130
Machado Street	South of Lakeshore Drive	Major	40	55
Gunnerson Street	North of Lakeshore Drive	Collector	40	55
Highway 74	North of Lakeshore Drive	Urban Arterial	40	65
Highway 74	South of Lakeshore Drive	Urban Arterial	40	55

Notes:

[1] Distance measured from nearest offsite residential structure to centerline of roadway.
Source: City of Lake Elsinore, 2011.

The average daily traffic (ADT) volumes for the without project conditions were obtained from the *Lakeshore Drive Traffic Impact Analysis* (Traffic Analysis), prepared by EPD Solutions, Inc., August 8, 2022. The ADT volumes were calculated by multiplying the PM peak hour volumes by 12. The ADT volumes used in this analysis are shown in Table I.

Table I – Average Daily Traffic Volumes

Roadway	Segment	Average Daily Traffic Volumes			
		Existing	Existing + Project	Year 2024 Cumulative	Year 2024 Cumulative + Project
Lakeshore Drive	West of Machado Street	13,070	13,272	17,238	17,440
Lakeshore Drive	West of Gunnerson Street	18,940	19,192	23,678	23,930
Lakeshore Drive	East of Gunnerson Street	19,000	19,706	23,884	24,590
Lakeshore Drive	East of Highway 74	14,320	14,421	18,129	18,230
Machado Street	South of Lakeshore Drive	9,670	9,720	10,830	10,880
Gunnerson Street	North of Lakeshore Drive	1,620	1,670	1,820	1,870
Highway 74	North of Lakeshore Drive	23,300	23,653	27,117	27,470
Highway 74	South of Lakeshore Drive	25,540	25,742	31,818	32,020

Source: City of Lake Elsinore, 2011; EPD Solutions, Inc., 2022.

The vehicle mixes used in the FHWA-RD-77-108 Model are shown in Table J and is based on the typical vehicle mixes observed in Riverside County and from Caltrans. The vehicle mixes provides the hourly distribution percentages of automobiles, medium trucks, and heavy trucks for input into the FHWA model.

Table J – Roadway Vehicle Mixes

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
Secondary, Collector or Smaller				
Automobiles	73.60%	13.60%	10.22%	97.42%
Medium Trucks	0.90%	0.04%	0.9%	1.84%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%
Major and Urban Arterial				
Automobiles	69.50%	12.90%	9.60%	92.00%
Medium Trucks	1.44%	0.06%	1.50%	3.00%
Heavy Trucks	2.40%	0.10%	2.50%	5.00%
Highway 74				
Automobiles	63.75%	13.07%	15.28%	92.10%
Medium Trucks	3.53%	0.64%	1.79%	5.96%
Heavy Trucks	1.06%	0.10%	0.77%	1.94%

Source: County of Riverside, 2015; Caltrans, 2018.

FHWA Model Source Assumptions

To assess the roadway noise generation in a uniform manner, all vehicles are analyzed 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.

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 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, 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 City standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include site preparation and grading of the 10.29 gross acre project site, building construction of the townhomes, paving of the onsite roads and parking areas, sidewalks and hardscapes, 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 mobile homes and a preschool located as near as 10 feet northwest of the project site, single-family homes located as near as 14 feet southeast of the project site, and townhomes located as near as 35 feet southwest of the project site.

Section 17.176.080(F)(1) of the City's Municipal Code restricts construction activities from occurring between the weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on weekends or holidays. Section 17.176.080(F)(2) of the City's Municipal Code limits construction noise that occurs during the allowable times in Type I (single-family residential) areas to 75 dBA for mobile equipment and 60 dBA for stationary equipment. Section 17.176.080(F)(2) also limits construction noise that occurs during the allowable times in Type II (multi-family residential) areas to 80 dBA for mobile equipment and 65 dBA for stationary 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 L that shows the anticipated construction equipment per phase. The results are shown below in Table L and the RCNM printouts are provided in Appendix C.

Table L – Construction Noise Levels at the Nearby Sensitive Receptors

Construction Phase	Construction Noise Level (dBA Leq) at:		
	Mobile Homes & Preschool to the Northwest[1]	Single-Family Homes to the Southeast[2]	Multi-Family Homes to the Southwest[3]
Site Preparation	70	70	68
Grading	71	71	68
Building Construction	70	69	67
Paving	64	64	62
Painting	56	56	54
City's Mobile Equipment Threshold[4]	**75**	**75**	**80**
City's Stationary Equipment Threshold[4]	**60**	**60**	**65**

[1] The mobile homes and preschool to the northwest are located as near as 210 feet from the center of the project site. In order to account for existing and proposed 6 foot high cmu wall (see Project Design Feature 1), 5 dB of attenuation was added to RCNM model.
[2] The single-family homes to the southeast are located as near as 215 feet from the center of the project site. In order to account for existing 6 foot high cmu wall, 5 dB of attenuation was added to RCNM model.
[3] The multi-family homes to the southwest are located as near as 500 feet from the center of the project site.
[4] City construction noise threshold from Section 17.176.080(F)(2) of the Municipal Code for Type I Areas (single-family and mobile homes) and Type II Areas (multi-family homes).
Source: RCNM, Federal Highway Administration, 2006

Table L shows that the greatest noise impacts would occur during the grading phase, with noise levels as high as 71 dBA Leq at the mobile homes and preschool to the northwest, 71 dBA Leq at the single-family homes to the southeast, and 68 dBA Leq at the multi-family homes to the southwest. Project Design Feature 1 is provided that would require the proposed six foot high cmu wall as detailed on the Wall Plan for the northwest side, adjacent to the preschool to be constructed prior to the start of grading and construction activities. Table L shows that with implementation of Project Design Feature 1, none of the construction phases would exceed the City's mobile equipment thresholds. However, all phases of construction have the potential to exceed the City's stationary equipment thresholds. This would be considered a significant impact.

Recommended Measure 1 is provided that would require any stationary construction equipment that is used within 100 feet of any off-site sensitive receptor to place a temporary sound barrier between the stationary equipment and nearby sensitive receptors. With implementation of Recommended Measure 1, construction-related noise impacts would be reduced to within the City noise standards.

Operational-Related Noise

The proposed project would consist of a residential development with 140 townhomes. Potential noise impacts associated with the operations of the proposed project would be from project-generated vehicular traffic on the nearby roadways. In addition, the proposed development would be adjacent to Lakeshore Drive, which may create exterior and interior noise levels in excess of City standards at the proposed homes. The noise impacts to the nearby existing homes and proposed homes have been analyzed separately below.

Roadway Vehicular Noise Impact to Nearby Existing Homes

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the

number of trucks in the flow of traffic. The proposed project does not propose any uses that would require a substantial number of truck trips and the proposed project would not alter the speed limit on any existing roadway so the proposed project's potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur with development of the proposed project.

Neither the General Plan nor the Municipal Code defines what constitutes a "substantial permanent increase to ambient noise levels". As such, this impact analysis has utilized guidance from the Federal Transit Administration for a moderate impact that has been detailed above in Table A that shows that the project contribution to the noise environment can range between 0 and 7 dB, which is dependent on the existing roadway noise levels.

The potential offsite traffic noise impacts created by the on-going operations of the proposed project have been analyzed through utilization of the FHWA model and parameters described above in Section 6.2 and the FHWA model traffic noise calculation spreadsheets are provided in Appendix D. The proposed project's potential offsite traffic noise impacts have been analyzed for the existing year and opening year 2023 plus cumulative projects conditions, which are discussed below.

Existing Year Conditions

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

Table M – Project Traffic Noise Contributions for Existing Year Conditions

		dBA CNEL at Nearest Receptor[1]				
Roadway	Segment	Existing	Existing Plus Project	Project Contribution	Increase Threshold[2]	Significant Impact?
Lakeshore Drive	West of Machado Street	64.6	64.6	0.1	+1 dBA	No
Lakeshore Drive	West of Gunnerson Street	65.8	65.8	0.1	+1 dBA	No
Lakeshore Drive	East of Gunnerson Street	67.3	67.5	0.2	+1 dBA	No
Lakeshore Drive	East of Highway 74	59.0	59.1	0.0	+3 dBA	No
Machado Street	South of Lakeshore Drive	64.9	64.9	0.0	+1 dBA	No
Gunnerson Street	North of Lakeshore Drive	55.2	55.3	0.1	+3 dBA	No
Highway 74	North of Lakeshore Drive	67.9	68.0	0.1	+1 dBA	No
Highway 74	South of Lakeshore Drive	70.2	70.2	0.0	+1 dBA	No

Notes:
[1] Distance to nearest residential use 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 M 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 traffic noise increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the existing year conditions. Impacts would be less than significant.

Opening Year 2024 Conditions

The proposed project's potential offsite roadway noise impacts have been calculated through a comparison of the opening year 2024 with cumulative projects scenario to the opening year 2024 with cumulative projects plus project scenario. The results of this comparison are shown in Table N.

Table N – Project Traffic Noise Contributions for Opening Year 2024 Conditions

		dBA CNEL at Nearest Receptor[1]				
Roadway	Segment	Year 2024	Year 2024 Plus Project	Project Contribution	Increase Threshold[2]	Significant Impact?
Lakeshore Drive	West of Machado Street	65.8	65.8	0.0	+1 dBA	No
Lakeshore Drive	West of Gunnerson Street	66.7	66.8	0.1	+1 dBA	No
Lakeshore Drive	East of Gunnerson Street	68.3	68.5	0.2	+1 dBA	No
Lakeshore Drive	East of Highway 74	60.0	60.1	0.1	+3 dBA	No
Machado Street	South of Lakeshore Drive	65.4	65.4	0.0	+1 dBA	No
Gunnerson Street	North of Lakeshore Drive	55.7	55.8	0.1	+3 dBA	No
Highway 74	North of Lakeshore Drive	68.5	68.6	0.1	+1 dBA	No
Highway 74	South of Lakeshore Drive	71.2	71.2	0.0	+1 dBA	No

Notes:
[1] Distance to nearest residential use 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 opening year 2024 conditions, the proposed project's permanent noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the traffic noise increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the opening year 2024 conditions. Impacts would be less than significant.

Roadway Noise Impacts to Proposed Homes

The City's General Plan Policy 7.1 requires that new multi-family residential development limit the exterior noise impacts to all proposed private outdoor areas to 60 dBA L_{dn} and limit the interior noise levels to 45 dBA L_{dn}.

It is anticipated that the primary source of noise impacts to the project site will be traffic noise from Lakeshore Drive that is adjacent to the northeast side of the project site. The FHWA traffic noise prediction model parameters used in this analysis are discussed above in detail in Section 6.2 and the FHWA model printouts are provided in Appendix E. The anticipated exterior noise levels have been calculated for the private open space areas for the buildings that are adjacent to Lakeshore Drive and the results are shown below in Table O.

Table O also show the interior noise levels calculated based on the "windows closed" condition, that according to *Highway Traffic Noise: Analysis and Abatement Guidance,* prepared by U.S. Department of Transportation, December, 2011, a new residential building provides a minimum of 25 dB of noise attenuation with windows closed and dual-paned windows. The proposed residential structures will be required to be designed to meet the CCR Title 24, Part 6: California's Energy Efficiency Standards that require the installation of dual paned windows in the climate zone where the proposed project is located.

Project Design Feature 2 has been included in this analysis to ensure that each townhome has a forced air heating and air conditioning system so that windows may be kept in the closed position.

Table O – Proposed Townhomes Exterior and Interior Noise Levels

Lot Number	Roadway	Private Outdoor Area Noise Level[1] (dBA CNEL)	Interior Noise Levels		Exceed 60 dBA Exterior or 45 dBA Interior Threshold?
			Floor	Noise Level (dBA CNEL)[2]	
1	Lakeshore Drive West of Gunnerson Street	59	First	35	No/No
			Second	41	No/No
2	Lakeshore Drive West of Gunnerson Street	59	First	35	No/No
			Second	41	No/No
43	Lakeshore Drive East of Gunnerson Street	59	First	35	No/No
			Second	41	No/No
44	Lakeshore Drive East of Gunnerson Street	59	First	33	No/No
			Second	39	No/No

Notes:
[1] As shown in the Wall and Fence Plan (see Figure 3, above), the private outdoor area noise calculations account for the noise reduction provided by a 6-foot high cmu wall at the rear of the private outdoor areas that are adjacent to Lakeshore Drive.
[2] Interior noise level based on a 25 dB exterior to interior noise reduction rate with implementation of Project Design Feature 1 that allows for a "windows closed" condition (U.S. Department of Transportation, 2011)
Source: FHWA RD-77-108 Model.

Table O shows that the noise levels at all analyzed townhomes private open space areas would be within the City's 60 dBA Ldn noise standard. Table O also shows that with implementation of Project Design Feature 2, the interior noise levels of all analyzed townhomes would be within the City's 45 dBA CNEL interior noise standard. Impacts would be less than significant.

Level of Significance

Potentially significant impact.

Recommended Measures

Recommended Measure 1:

The project applicant shall require any construction contractor that needs to use stationary construction equipment within 100 feet of any offsite sensitive receptors (homes or preschool) to place a temporary sound barrier between the stationary equipment and nearest sensitive receptors.

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 site preparation and grading of the 10.29 gross acre project site, building construction of the townhomes, paving of the onsite roads and parking areas, sidewalks and hardscapes, 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 mobile homes and a preschool located as near as 10 feet northwest of the project site.

Section 17.176.080(G) of the City's Municipal Code restricts the operation of any device that creates a vibration which is above the vibration threshold of any individual at or beyond the property boundary of the source. Since the City's Municipal does not provide a quantifiable vibration level, Caltrans guidance that is detailed above in Section 4.2 has been utilized, which defines the threshold of perception from transient sources at 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 offsite home (10 feet to the northwest) would be 0.24 inch per second PPV. The vibration level at the nearest offsite home would be below the 0.25 inch per second PPV threshold detailed above. Impacts would be less than significant.

Operations-Related Vibration Impacts

The proposed project would consist of the development of 140 townhomes. 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. Therefore, a less than significant vibration impact is anticipated from operation of the proposed project.

Level of Significance

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 Skylark Airport, located approximately five miles southeast of the project site. The project site is located outside of the 60 dBA CNEL noise contours of this airport and the site observations during the noise measurements found that although aircraft noise is occasionally audible at the project site, the noise created by the aircraft is not loud enough to measurably increase the ambient noise levels, which is primarily created by Lakeshore Drive. Impacts would be less than significant.

Level of Significance

Less than significant 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.

City of Lake Elsinore, *City of Lake Elsinore General Plan*, December 13, 2011.

City of Lake Elsinore, *City of Lake Elsinore General Plan Update Final Recirculated Program Environmental Impact Report*, December 13, 2011.

City of Lake Elsinore, *Lake Elsinore Municipal Code,* May 10, 2022.

EPD Solutions, Inc., *Lakeshore Drive Traffic Impact Analysis,* August 8, 2022.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* May 2006.

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

U.S. Department of Transportation, *Highway Traffic Noise: Analysis and Abatement Guidance,* December, 2011.

Vista Environmental, *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis Lakeshore Drive – 10 Acres Residential Project*, July 20, 2022.

APPENDIX A

Field Noise Measurements Photo Index

Noise Measurement Site 1 - looking north

Noise Measurement Site 1 - looking northeast

Noise Measurement Site 1 - looking east

Noise Measurement Site 1 - looking southeast

Noise Measurement Site 1 - looking south

Noise Measurement Site 1 - looking southwest

Noise Measurement Site 1 - looking west

Noise Measurement Site 1 - looking northwest

Noise Measurement Site 2 - looking north

Noise Measurement Site 2 - looking northeast

Noise Measurement Site 2 - looking east

Noise Measurement Site 2 - looking southeast

Noise Measurement Site 2 - looking south

Noise Measurement Site 2 - looking southwest

Noise Measurement Site 2 - looking west

Noise Measurement Site 2 - looking northwest

APPENDIX B

Field Noise Measurements Printouts

Site 1 - Northeast Side of Project Site (near Lakeshore Drive)

Date	Time=07/14/22	10:40:00 AM				
Sampling	Time=3		Weighting=A			
Record	Num=	29200	Weighting=Slow	CNEL(24hr)=	68.1	
Leq	63.4	SEL	Value=113.0	Ldn(24hr)=	67.6	
MAX	92.3		Min Leq1hr =	53.4	2:18 AM	
MIN	35		Max Leq1hr =	67.5	5:21 PM	

Site 2 - Northwest Side of Project Site (near Preschool)

Date	Time=07/14/22	10:45:00 AM				
Sampling	Time=3		Freq Weighting=A			
Record	Num=	29200	Weighting=Slow	CNEL(24hr)=	56.4	
Leq	52.3	SEL	Value=109.0	Ldn(24hr)=	55.8	
MAX	77.9		Min Leq1hr =	42.9	2:09 AM	
MIN	38.4		Max Leq1hr =	56.9	8:47 AM	

Site 1 - Northeast Side of Project Site (near Lakeshore Drive)

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
64	10:40:00		64	64
65.7	10:40:03		65.7	65.7
63.3	10:40:06		63.3	63.3
60.3	10:40:09		60.3	60.3
65.2	10:40:12		65.2	65.2
55.9	10:40:15		55.9	55.9
57	10:40:18		57	57
56.6	10:40:21		56.6	56.6
65	10:40:24		65	65
68.6	10:40:27		68.6	68.6
65.9	10:40:30		65.9	65.9
59.5	10:40:33		59.5	59.5
58.5	10:40:36		58.5	58.5
63	10:40:39		63	63
59.6	10:40:42		59.6	59.6
56.6	10:40:45		56.6	56.6
63.2	10:40:48		63.2	63.2
61.3	10:40:51		61.3	61.3
62	10:40:54		62	62
58.6	10:40:57		58.6	58.6
67	10:41:00		67	67
69.7	10:41:03		69.7	69.7
57.3	10:41:06		57.3	57.3
65	10:41:09		65	65
66.5	10:41:12		66.5	66.5
63.6	10:41:15		63.6	63.6
64.6	10:41:18		64.6	64.6
60.7	10:41:21		60.7	60.7
67.1	10:41:24		67.1	67.1
58.1	10:41:27		58.1	58.1
59.2	10:41:30		59.2	59.2
67.5	10:41:33		67.5	67.5
65.5	10:41:36		65.5	65.5
65.2	10:41:39		65.2	65.2
65.4	10:41:42		65.4	65.4
61.2	10:41:45		61.2	61.2
65.2	10:41:48		65.2	65.2
66.8	10:41:51		66.8	66.8
62.6	10:41:54		62.6	62.6
52.4	10:41:57		52.4	52.4
58.9	10:42:00		58.9	58.9
61.1	10:42:03		61.1	61.1
64.4	10:42:06		64.4	64.4
58.6	10:42:09		58.6	58.6
64.2	10:42:12		64.2	64.2
62.7	10:42:15		62.7	62.7
59.4	10:42:18		59.4	59.4
62.5	10:42:21		62.5	62.5
64.2	10:42:24		64.2	64.2
57.5	10:42:27		57.5	57.5
57.2	10:42:30		57.2	57.2
67.9	10:42:33		67.9	67.9
66.4	10:42:36		66.4	66.4
58.7	10:42:39		58.7	58.7
52.9	10:42:42		52.9	52.9
54.8	10:42:45		54.8	54.8
66.9	10:42:48		66.9	66.9
55.2	10:42:51		55.2	55.2
50	10:42:54		50	50
46.3	10:42:57		46.3	46.3
45.6	10:43:00		45.6	45.6
47.6	10:43:03		47.6	47.6
60.8	10:43:06		60.8	60.8
61.9	10:43:09		61.9	61.9
52.9	10:43:12		52.9	52.9
52.8	10:43:15		52.8	52.8
63.5	10:43:18		63.5	63.5
62.6	10:43:21		62.6	62.6
54.7	10:43:24		54.7	54.7
51.4	10:43:27		51.4	51.4
61.9	10:43:30		61.9	61.9
60.3	10:43:33		60.3	60.3
53.3	10:43:36		53.3	53.3
53.1	10:43:39		53.1	53.1
65.7	10:43:42		65.7	65.7
66.4	10:43:45		66.4	66.4
68.7	10:43:48		68.7	68.7

Site 2 - Northwest Side of Project Site (near Preschool)

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
57.3	10:45:00		57.3	57.3
59.4	10:45:03		59.4	59.4
66.3	10:45:06		66.3	66.3
69.2	10:45:09		69.2	69.2
55.1	10:45:12		55.1	55.1
68.3	10:45:15		68.3	68.3
66.5	10:45:18		66.5	66.5
69.7	10:45:21		69.7	69.7
62	10:45:24		62	62
60.7	10:45:27		60.7	60.7
66.6	10:45:30		66.6	66.6
67.6	10:45:33		67.6	67.6
68.3	10:45:36		68.3	68.3
63.8	10:45:39		63.8	63.8
62.5	10:45:42		62.5	62.5
60.8	10:45:45		60.8	60.8
57.6	10:45:48		57.6	57.6
65.2	10:45:51		65.2	65.2
66.5	10:45:54		66.5	66.5
60.3	10:45:57		60.3	60.3
64	10:46:00		64	64
60.6	10:46:03		60.6	60.6
50.6	10:46:06		50.6	50.6
52.8	10:46:09		52.8	52.8
55.9	10:46:12		55.9	55.9
50.2	10:46:15		50.2	50.2
52.7	10:46:18		52.7	52.7
53.2	10:46:21		53.2	53.2
49.3	10:46:24		49.3	49.3
48.5	10:46:27		48.5	48.5
47.2	10:46:30		47.2	47.2
49.3	10:46:33		49.3	49.3
45.9	10:46:36		45.9	45.9
45.8	10:46:39		45.8	45.8
45.1	10:46:42		45.1	45.1
48.1	10:46:45		48.1	48.1
46.6	10:46:48		46.6	46.6
47	10:46:51		47	47
49.3	10:46:54		49.3	49.3
49.2	10:46:57		49.2	49.2
49.3	10:47:00		49.3	49.3
51.3	10:47:03		51.3	51.3
49.8	10:47:06		49.8	49.8
47.1	10:47:09		47.1	47.1
44.9	10:47:12		44.9	44.9
43.5	10:47:15		43.5	43.5
42.8	10:47:18		42.8	42.8
43	10:47:21		43	43
42.7	10:47:24		42.7	42.7
43.7	10:47:27		43.7	43.7
43.1	10:47:30		43.1	43.1
43.4	10:47:33		43.4	43.4
43.8	10:47:36		43.8	43.8
44.1	10:47:39		44.1	44.1
44.2	10:47:42		44.2	44.2
44.3	10:47:45		44.3	44.3
44.8	10:47:48		44.8	44.8
44.8	10:47:51		44.8	44.8
45.5	10:47:54		45.5	45.5
48.4	10:47:57		48.4	48.4
53.4	10:48:00		53.4	53.4
53.3	10:48:03		53.3	53.3
53.9	10:48:06		53.9	53.9
56.1	10:48:09		56.1	56.1
55.7	10:48:12		55.7	55.7
53.9	10:48:15		53.9	53.9
52.2	10:48:18		52.2	52.2
50.5	10:48:21		50.5	50.5
49.1	10:48:24		49.1	49.1
49.3	10:48:27		49.3	49.3
48.9	10:48:30		48.9	48.9
51.1	10:48:33		51.1	51.1
49.4	10:48:36		49.4	49.4
48.1	10:48:39		48.1	48.1
47.2	10:48:42		47.2	47.2
49.1	10:48:45		49.1	49.1
48.9	10:48:48		48.9	48.9

Site 1 - Northeast Side of Project Site (near Lakeshore Drive)					Site 2 - Northwest Side of Project Site (near Preschool)				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
66.1	10:43:51		66.1	66.1	50.1	10:48:51		50.1	50.1
59.2	10:43:54		59.2	59.2	47.2	10:48:54		47.2	47.2
64.7	10:43:57		64.7	64.7	47.6	10:48:57		47.6	47.6
55.4	10:44:00		55.4	55.4	48.5	10:49:00		48.5	48.5
54	10:44:03		54	54	47.9	10:49:03		47.9	47.9
65.8	10:44:06		65.8	65.8	49.3	10:49:06		49.3	49.3
64	10:44:09		64	64	50.6	10:49:09		50.6	50.6
66	10:44:12		66	66	49.3	10:49:12		49.3	49.3
64	10:44:15		64	64	47.1	10:49:15		47.1	47.1
63.2	10:44:18		63.2	63.2	47.4	10:49:18		47.4	47.4
64.8	10:44:21		64.8	64.8	46.5	10:49:21		46.5	46.5
64.1	10:44:24		64.1	64.1	48.3	10:49:24		48.3	48.3
63	10:44:27		63	63	44.9	10:49:27		44.9	44.9
59.7	10:44:30		59.7	59.7	44.2	10:49:30		44.2	44.2
60.4	10:44:33		60.4	60.4	44.3	10:49:33		44.3	44.3
57.3	10:44:36		57.3	57.3	45.7	10:49:36		45.7	45.7
66.1	10:44:39		66.1	66.1	51.5	10:49:39		51.5	51.5
63.7	10:44:42		63.7	63.7	47.8	10:49:42		47.8	47.8
55.5	10:44:45		55.5	55.5	51.2	10:49:45		51.2	51.2
65.3	10:44:48		65.3	65.3	66.1	10:49:48		66.1	66.1
65.3	10:44:51		65.3	65.3	51.5	10:49:51		51.5	51.5
65.9	10:44:54		65.9	65.9	48.4	10:49:54		48.4	48.4
68.4	10:44:57		68.4	68.4	48.6	10:49:57		48.6	48.6
65.4	10:45:00		65.4	65.4	50.3	10:50:00		50.3	50.3
58.7	10:45:03		58.7	58.7	48.8	10:50:03		48.8	48.8
62	10:45:06		62	62	49.2	10:50:06		49.2	49.2
57.2	10:45:09		57.2	57.2	50.1	10:50:09		50.1	50.1
60.8	10:45:12		60.8	60.8	47	10:50:12		47	47
61.1	10:45:15		61.1	61.1	50	10:50:15		50	50
64.8	10:45:18		64.8	64.8	50	10:50:18		50	50
65.2	10:45:21		65.2	65.2	51.2	10:50:21		51.2	51.2
66.8	10:45:24		66.8	66.8	51.2	10:50:24		51.2	51.2
64	10:45:27		64	64	50.7	10:50:27		50.7	50.7
60.1	10:45:30		60.1	60.1	50.9	10:50:30		50.9	50.9
64.1	10:45:33		64.1	64.1	51.2	10:50:33		51.2	51.2
63.7	10:45:36		63.7	63.7	49.8	10:50:36		49.8	49.8
59.1	10:45:39		59.1	59.1	51.3	10:50:39		51.3	51.3
65.4	10:45:42		65.4	65.4	46.2	10:50:42		46.2	46.2
66.4	10:45:45		66.4	66.4	47.6	10:50:45		47.6	47.6
64.4	10:45:48		64.4	64.4	50.1	10:50:48		50.1	50.1
67	10:45:51		67	67	52.6	10:50:51		52.6	52.6
64.5	10:45:54		64.5	64.5	62.9	10:50:54		62.9	62.9
64.3	10:45:57		64.3	64.3	67	10:50:57		67	67
63.9	10:46:00		63.9	63.9	57.2	10:51:00		57.2	57.2
58.9	10:46:03		58.9	58.9	51.2	10:51:03		51.2	51.2
60.6	10:46:06		60.6	60.6	48.2	10:51:06		48.2	48.2
57.9	10:46:09		57.9	57.9	47.3	10:51:09		47.3	47.3
63.8	10:46:12		63.8	63.8	48.1	10:51:12		48.1	48.1
63.6	10:46:15		63.6	63.6	47.7	10:51:15		47.7	47.7
60.1	10:46:18		60.1	60.1	49	10:51:18		49	49
57.7	10:46:21		57.7	57.7	50.8	10:51:21		50.8	50.8
68.5	10:46:24		68.5	68.5	48.7	10:51:24		48.7	48.7
68.7	10:46:27		68.7	68.7	46.8	10:51:27		46.8	46.8
61.4	10:46:30		61.4	61.4	47.8	10:51:30		47.8	47.8
68.1	10:46:33		68.1	68.1	49.8	10:51:33		49.8	49.8
66.8	10:46:36		66.8	66.8	50.3	10:51:36		50.3	50.3
55.4	10:46:39		55.4	55.4	50.2	10:51:39		50.2	50.2
49.9	10:46:42		49.9	49.9	57.6	10:51:42		57.6	57.6
47.3	10:46:45		47.3	47.3	54.7	10:51:45		54.7	54.7
47.5	10:46:48		47.5	47.5	53	10:51:48		53	53
46.6	10:46:51		46.6	46.6	52.3	10:51:51		52.3	52.3
53.2	10:46:54		53.2	53.2	54.2	10:51:54		54.2	54.2
55.2	10:46:57		55.2	55.2	55.9	10:51:57		55.9	55.9
50.4	10:47:00		50.4	50.4	53.5	10:52:00		53.5	53.5
45.3	10:47:03		45.3	45.3	53.7	10:52:03		53.7	53.7
46.5	10:47:06		46.5	46.5	52.7	10:52:06		52.7	52.7
54.9	10:47:09		54.9	54.9	50.6	10:52:09		50.6	50.6
61.1	10:47:12		61.1	61.1	50.6	10:52:12		50.6	50.6
54.1	10:47:15		54.1	54.1	50.6	10:52:15		50.6	50.6
52.4	10:47:18		52.4	52.4	51.7	10:52:18		51.7	51.7
49.7	10:47:21		49.7	49.7	52.6	10:52:21		52.6	52.6
50.4	10:47:24		50.4	50.4	51.5	10:52:24		51.5	51.5
58.3	10:47:27		58.3	58.3	49.8	10:52:27		49.8	49.8
64.2	10:47:30		64.2	64.2	48.3	10:52:30		48.3	48.3
67.1	10:47:33		67.1	67.1	48.9	10:52:33		48.9	48.9
67.9	10:47:36		67.9	67.9	47.2	10:52:36		47.2	47.2
73.1	10:47:39		73.1	73.1	47.7	10:52:39		47.7	47.7
71.8	10:47:42		71.8	71.8	49.6	10:52:42		49.6	49.6
72.4	10:47:45		72.4	72.4	53.3	10:52:45		53.3	53.3
65.6	10:47:48		65.6	65.6	52.4	10:52:48		52.4	52.4
59.7	10:47:51		59.7	59.7	52.1	10:52:51		52.1	52.1
63.6	10:47:54		63.6	63.6	53.2	10:52:54		53.2	53.2
65.7	10:47:57		65.7	65.7	52.4	10:52:57		52.4	52.4
65.1	10:48:00		65.1	65.1	52.9	10:53:00		52.9	52.9
66.4	10:48:03		66.4	66.4	54.9	10:53:03		54.9	54.9
61.6	10:48:06		61.6	61.6	56.6	10:53:06		56.6	56.6
58.8	10:48:09		58.8	58.8	57.7	10:53:09		57.7	57.7
64.5	10:48:12		64.5	64.5	62.6	10:53:12		62.6	62.6
62.5	10:48:15		62.5	62.5	62	10:53:15		62	62

Site 1 - Northeast Side of Project Site (near Lakeshore Drive)					Site 2 - Northwest Side of Project Site (near Preschool)				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
69	10:48:18		69	69	56.8	10:53:18		56.8	56.8
64.6	10:48:21		64.6	64.6	50.9	10:53:21		50.9	50.9
61.8	10:48:24		61.8	61.8	47.8	10:53:24		47.8	47.8
64.9	10:48:27		64.9	64.9	47	10:53:27		47	47
64.8	10:48:30		64.8	64.8	48.4	10:53:30		48.4	48.4
65.7	10:48:33		65.7	65.7	49.3	10:53:33		49.3	49.3
66.8	10:48:36		66.8	66.8	51.6	10:53:36		51.6	51.6
64.7	10:48:39		64.7	64.7	49.9	10:53:39		49.9	49.9
63.1	10:48:42		63.1	63.1	49	10:53:42		49	49
63.6	10:48:45		63.6	63.6	49.6	10:53:45		49.6	49.6
56.4	10:48:48		56.4	56.4	48.3	10:53:48		48.3	48.3
67.8	10:48:51		67.8	67.8	52.7	10:53:51		52.7	52.7
60	10:48:54		60	60	52	10:53:54		52	52
52.6	10:48:57		52.6	52.6	48.8	10:53:57		48.8	48.8
51.8	10:49:00		51.8	51.8	52.9	10:54:00		52.9	52.9
48.8	10:49:03		48.8	48.8	55.5	10:54:03		55.5	55.5
50	10:49:06		50	50	50	10:54:06		50	50
50.5	10:49:09		50.5	50.5	49.4	10:54:09		49.4	49.4
57.9	10:49:12		57.9	57.9	50.8	10:54:12		50.8	50.8
61.9	10:49:15		61.9	61.9	50.2	10:54:15		50.2	50.2
57.5	10:49:18		57.5	57.5	51.3	10:54:18		51.3	51.3
64.9	10:49:21		64.9	64.9	53.5	10:54:21		53.5	53.5
66	10:49:24		66	66	53.4	10:54:24		53.4	53.4
58.7	10:49:27		58.7	58.7	52	10:54:27		52	52
65.8	10:49:30		65.8	65.8	52.8	10:54:30		52.8	52.8
61.1	10:49:33		61.1	61.1	51.6	10:54:33		51.6	51.6
64	10:49:36		64	64	50.5	10:54:36		50.5	50.5
63.7	10:49:39		63.7	63.7	49	10:54:39		49	49
64.9	10:49:42		64.9	64.9	48.8	10:54:42		48.8	48.8
61.4	10:49:45		61.4	61.4	47.4	10:54:45		47.4	47.4
55.5	10:49:48		55.5	55.5	51.7	10:54:48		51.7	51.7
64.5	10:49:51		64.5	64.5	51.3	10:54:51		51.3	51.3
63.1	10:49:54		63.1	63.1	51.9	10:54:54		51.9	51.9
63.1	10:49:57		63.1	63.1	51.3	10:54:57		51.3	51.3
67.5	10:50:00		67.5	67.5	49.8	10:55:00		49.8	49.8
62.3	10:50:03		62.3	62.3	49.3	10:55:03		49.3	49.3
55.2	10:50:06		55.2	55.2	50	10:55:06		50	50
49.7	10:50:09		49.7	49.7	50.1	10:55:09		50.1	50.1
50.4	10:50:12		50.4	50.4	52.7	10:55:12		52.7	52.7
53.6	10:50:15		53.6	53.6	49.1	10:55:15		49.1	49.1
65.9	10:50:18		65.9	65.9	48.7	10:55:18		48.7	48.7
70.4	10:50:21		70.4	70.4	45.6	10:55:21		45.6	45.6
73.8	10:50:24		73.8	73.8	46.2	10:55:24		46.2	46.2
78.5	10:50:27		78.5	78.5	47.5	10:55:27		47.5	47.5
68.4	10:50:30		68.4	68.4	48.2	10:55:30		48.2	48.2
62.3	10:50:33		62.3	62.3	49.5	10:55:33		49.5	49.5
57	10:50:36		57	57	51.9	10:55:36		51.9	51.9
58.4	10:50:39		58.4	58.4	51.8	10:55:39		51.8	51.8
63.7	10:50:42		63.7	63.7	50.7	10:55:42		50.7	50.7
66.2	10:50:45		66.2	66.2	48.2	10:55:45		48.2	48.2
66	10:50:48		66	66	51.5	10:55:48		51.5	51.5
60.4	10:50:51		60.4	60.4	47.9	10:55:51		47.9	47.9
58.3	10:50:54		58.3	58.3	57.1	10:55:54		57.1	57.1
56	10:50:57		56	56	47.2	10:55:57		47.2	47.2
63.9	10:51:00		63.9	63.9	48.7	10:56:00		48.7	48.7
61.4	10:51:03		61.4	61.4	49.1	10:56:03		49.1	49.1
63.7	10:51:06		63.7	63.7	52.8	10:56:06		52.8	52.8
65.4	10:51:09		65.4	65.4	47.9	10:56:09		47.9	47.9
66.8	10:51:12		66.8	66.8	47.2	10:56:12		47.2	47.2
58.4	10:51:15		58.4	58.4	47.8	10:56:15		47.8	47.8
52.4	10:51:18		52.4	52.4	49.9	10:56:18		49.9	49.9
55.1	10:51:21		55.1	55.1	45.8	10:56:21		45.8	45.8
67	10:51:24		67	67	48.6	10:56:24		48.6	48.6
64.2	10:51:27		64.2	64.2	50.8	10:56:27		50.8	50.8
60.9	10:51:30		60.9	60.9	51.2	10:56:30		51.2	51.2
59.3	10:51:33		59.3	59.3	52.3	10:56:33		52.3	52.3
61.7	10:51:36		61.7	61.7	51.8	10:56:36		51.8	51.8
64.5	10:51:39		64.5	64.5	51.2	10:56:39		51.2	51.2
57.8	10:51:42		57.8	57.8	49.7	10:56:42		49.7	49.7
63.6	10:51:45		63.6	63.6	48.2	10:56:45		48.2	48.2
62.4	10:51:48		62.4	62.4	49	10:56:48		49	49
62.7	10:51:51		62.7	62.7	50.8	10:56:51		50.8	50.8
62.8	10:51:54		62.8	62.8	45.5	10:56:54		45.5	45.5
62.2	10:51:57		62.2	62.2	45.6	10:56:57		45.6	45.6
64.8	10:52:00		64.8	64.8	48.3	10:57:00		48.3	48.3
56.4	10:52:03		56.4	56.4	50	10:57:03		50	50
54.8	10:52:06		54.8	54.8	50.8	10:57:06		50.8	50.8
65.9	10:52:09		65.9	65.9	51.6	10:57:09		51.6	51.6
66.3	10:52:12		66.3	66.3	51.6	10:57:12		51.6	51.6
65.7	10:52:15		65.7	65.7	53	10:57:15		53	53
63.5	10:52:18		63.5	63.5	52.7	10:57:18		52.7	52.7
66.4	10:52:21		66.4	66.4	50.9	10:57:21		50.9	50.9
60.5	10:52:24		60.5	60.5	48.7	10:57:24		48.7	48.7
69.4	10:52:27		69.4	69.4	48.5	10:57:27		48.5	48.5
66.6	10:52:30		66.6	66.6	48.4	10:57:30		48.4	48.4
68.6	10:52:33		68.6	68.6	47.7	10:57:33		47.7	47.7
67.4	10:52:36		67.4	67.4	50.1	10:57:36		50.1	50.1
62.6	10:52:39		62.6	62.6	47.6	10:57:39		47.6	47.6
76	10:52:42		76	76	47.4	10:57:42		47.4	47.4

Site 1 - Northeast Side of Project Site (near Lakeshore Drive)					Site 2 - Northwest Side of Project Site (near Preschool)				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
73.4	10:52:45		73.4	73.4	47.9	10:57:45		47.9	47.9
63	10:52:48		63	63	49.6	10:57:48		49.6	49.6
58.8	10:52:51		58.8	58.8	49.7	10:57:51		49.7	49.7
60.1	10:52:54		60.1	60.1	47.2	10:57:54		47.2	47.2
61.7	10:52:57		61.7	61.7	48.8	10:57:57		48.8	48.8
63.2	10:53:00		63.2	63.2	49.1	10:58:00		49.1	49.1
57.2	10:53:03		57.2	57.2	49.2	10:58:03		49.2	49.2
66	10:53:06		66	66	48.2	10:58:06		48.2	48.2
61.3	10:53:09		61.3	61.3	48.1	10:58:09		48.1	48.1
64.2	10:53:12		64.2	64.2	47	10:58:12		47	47
62.6	10:53:15		62.6	62.6	46.8	10:58:15		46.8	46.8
66.9	10:53:18		66.9	66.9	48.7	10:58:18		48.7	48.7
62.9	10:53:21		62.9	62.9	50.9	10:58:21		50.9	50.9
53.5	10:53:24		53.5	53.5	51.7	10:58:24		51.7	51.7
56.4	10:53:27		56.4	56.4	50.8	10:58:27		50.8	50.8
63.9	10:53:30		63.9	63.9	48	10:58:30		48	48
66.6	10:53:33		66.6	66.6	48.3	10:58:33		48.3	48.3
66.4	10:53:36		66.4	66.4	47.9	10:58:36		47.9	47.9
64.2	10:53:39		64.2	64.2	48.3	10:58:39		48.3	48.3
59.5	10:53:42		59.5	59.5	46.1	10:58:42		46.1	46.1
68.2	10:53:45		68.2	68.2	46.8	10:58:45		46.8	46.8
68.6	10:53:48		68.6	68.6	47.6	10:58:48		47.6	47.6
68.2	10:53:51		68.2	68.2	47.3	10:58:51		47.3	47.3
66.2	10:53:54		66.2	66.2	49.1	10:58:54		49.1	49.1
65.6	10:53:57		65.6	65.6	51	10:58:57		51	51
70.3	10:54:00		70.3	70.3	50.9	10:59:00		50.9	50.9
66.8	10:54:03		66.8	66.8	53.8	10:59:03		53.8	53.8
66.7	10:54:06		66.7	66.7	54.4	10:59:06		54.4	54.4
60.2	10:54:09		60.2	60.2	53.5	10:59:09		53.5	53.5
58	10:54:12		58	58	50.5	10:59:12		50.5	50.5
56	10:54:15		56	56	49.3	10:59:15		49.3	49.3
57.5	10:54:18		57.5	57.5	48.6	10:59:18		48.6	48.6
60	10:54:21		60	60	48.2	10:59:21		48.2	48.2
68.8	10:54:24		68.8	68.8	47.2	10:59:24		47.2	47.2
65.9	10:54:27		65.9	65.9	48.8	10:59:27		48.8	48.8
63.6	10:54:30		63.6	63.6	50.9	10:59:30		50.9	50.9
61.8	10:54:33		61.8	61.8	50.6	10:59:33		50.6	50.6
58.8	10:54:36		58.8	58.8	50.9	10:59:36		50.9	50.9
65.6	10:54:39		65.6	65.6	48.9	10:59:39		48.9	48.9
56.9	10:54:42		56.9	56.9	48.2	10:59:42		48.2	48.2
65.2	10:54:45		65.2	65.2	50	10:59:45		50	50
57.1	10:54:48		57.1	57.1	51.1	10:59:48		51.1	51.1
53	10:54:51		53	53	51.6	10:59:51		51.6	51.6
54.8	10:54:54		54.8	54.8	52.4	10:59:54		52.4	52.4
58.3	10:54:57		58.3	58.3	48.9	10:59:57		48.9	48.9
65.8	10:55:00		65.8	65.8	48.6	11:00:00		48.6	48.6
68.1	10:55:03		68.1	68.1	49.4	11:00:03		49.4	49.4
68.2	10:55:06		68.2	68.2	47.3	11:00:06		47.3	47.3
65.8	10:55:09		65.8	65.8	47.8	11:00:09		47.8	47.8
64	10:55:12		64	64	50.5	11:00:12		50.5	50.5
55.2	10:55:15		55.2	55.2	50.8	11:00:15		50.8	50.8
52.6	10:55:18		52.6	52.6	52.3	11:00:18		52.3	52.3
59.6	10:55:21		59.6	59.6	51.6	11:00:21		51.6	51.6
59.7	10:55:24		59.7	59.7	53.3	11:00:24		53.3	53.3
53.7	10:55:27		53.7	53.7	50.5	11:00:27		50.5	50.5
59	10:55:30		59	59	48.2	11:00:30		48.2	48.2
63.6	10:55:33		63.6	63.6	47.9	11:00:33		47.9	47.9
57.4	10:55:36		57.4	57.4	48.3	11:00:36		48.3	48.3
63.9	10:55:39		63.9	63.9	48.8	11:00:39		48.8	48.8
59.8	10:55:42		59.8	59.8	49.2	11:00:42		49.2	49.2
51.8	10:55:45		51.8	51.8	49.9	11:00:45		49.9	49.9
50.4	10:55:48		50.4	50.4	47.2	11:00:48		47.2	47.2
51.8	10:55:51		51.8	51.8	46.3	11:00:51		46.3	46.3
56.3	10:55:54		56.3	56.3	49.4	11:00:54		49.4	49.4
68.6	10:55:57		68.6	68.6	52.8	11:00:57		52.8	52.8
68.9	10:56:00		68.9	68.9	51.1	11:01:00		51.1	51.1
66.1	10:56:03		66.1	66.1	49.4	11:01:03		49.4	49.4
64.7	10:56:06		64.7	64.7	48.1	11:01:06		48.1	48.1
65.5	10:56:09		65.5	65.5	49.7	11:01:09		49.7	49.7
64.6	10:56:12		64.6	64.6	49.2	11:01:12		49.2	49.2
57.7	10:56:15		57.7	57.7	49.4	11:01:15		49.4	49.4
51.1	10:56:18		51.1	51.1	49.2	11:01:18		49.2	49.2
48.9	10:56:21		48.9	48.9	49.4	11:01:21		49.4	49.4
49.3	10:56:24		49.3	49.3	48.9	11:01:24		48.9	48.9
53.9	10:56:27		53.9	53.9	49.1	11:01:27		49.1	49.1
64.3	10:56:30		64.3	64.3	47.7	11:01:30		47.7	47.7
65.8	10:56:33		65.8	65.8	47.6	11:01:33		47.6	47.6
59.5	10:56:36		59.5	59.5	48.8	11:01:36		48.8	48.8
65.3	10:56:39		65.3	65.3	49.8	11:01:39		49.8	49.8
64.4	10:56:42		64.4	64.4	48.9	11:01:42		48.9	48.9
65.9	10:56:45		65.9	65.9	48.1	11:01:45		48.1	48.1
65.8	10:56:48		65.8	65.8	47	11:01:48		47	47
65.4	10:56:51		65.4	65.4	46.2	11:01:51		46.2	46.2
62.8	10:56:54		62.8	62.8	47.5	11:01:54		47.5	47.5
61.3	10:56:57		61.3	61.3	47.9	11:01:57		47.9	47.9
59.4	10:57:00		59.4	59.4	49.4	11:02:00		49.4	49.4
60.6	10:57:03		60.6	60.6	47.7	11:02:03		47.7	47.7
62	10:57:06		62	62	47.9	11:02:06		47.9	47.9
62.2	10:57:09		62.2	62.2	46.2	11:02:09		46.2	46.2

Site 1 - Northeast Side of Project Site (near Lakeshore Drive)					Site 2 - Northwest Side of Project Site (near Preschool)				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
57.8	10:57:12		57.8	57.8	46.9	11:02:12		46.9	46.9
51.9	10:57:15		51.9	51.9	51.1	11:02:15		51.1	51.1
58.8	10:57:18		58.8	58.8	54.3	11:02:18		54.3	54.3
64.1	10:57:21		64.1	64.1	50.2	11:02:21		50.2	50.2
55.6	10:57:24		55.6	55.6	48	11:02:24		48	48
62.9	10:57:27		62.9	62.9	47.9	11:02:27		47.9	47.9
67.9	10:57:30		67.9	67.9	47.5	11:02:30		47.5	47.5
62.7	10:57:33		62.7	62.7	47.6	11:02:33		47.6	47.6
54.6	10:57:36		54.6	54.6	47.3	11:02:36		47.3	47.3
54	10:57:39		54	54	46	11:02:39		46	46
58.4	10:57:42		58.4	58.4	44.6	11:02:42		44.6	44.6
61.9	10:57:45		61.9	61.9	45.7	11:02:45		45.7	45.7
65.5	10:57:48		65.5	65.5	46.7	11:02:48		46.7	46.7
68.6	10:57:51		68.6	68.6	47.7	11:02:51		47.7	47.7
66.6	10:57:54		66.6	66.6	47.1	11:02:54		47.1	47.1
56.6	10:57:57		56.6	56.6	46.4	11:02:57		46.4	46.4
51.8	10:58:00		51.8	51.8	45.9	11:03:00		45.9	45.9
52.6	10:58:03		52.6	52.6	46.4	11:03:03		46.4	46.4
67.7	10:58:06		67.7	67.7	46.3	11:03:06		46.3	46.3
57.9	10:58:09		57.9	57.9	46.3	11:03:09		46.3	46.3
52.9	10:58:12		52.9	52.9	46.5	11:03:12		46.5	46.5
52.7	10:58:15		52.7	52.7	45.6	11:03:15		45.6	45.6
55.9	10:58:18		55.9	55.9	45.9	11:03:18		45.9	45.9
67.1	10:58:21		67.1	67.1	45.1	11:03:21		45.1	45.1
59.9	10:58:24		59.9	59.9	43.1	11:03:24		43.1	43.1
64.6	10:58:27		64.6	64.6	50.3	11:03:27		50.3	50.3
71.3	10:58:30		71.3	71.3	54.5	11:03:30		54.5	54.5
70.4	10:58:33		70.4	70.4	55.4	11:03:33		55.4	55.4
63.2	10:58:36		63.2	63.2	50.4	11:03:36		50.4	50.4
63.2	10:58:39		63.2	63.2	50.8	11:03:39		50.8	50.8
61.8	10:58:42		61.8	61.8	49.8	11:03:42		49.8	49.8
56.3	10:58:45		56.3	56.3	52	11:03:45		52	52
65.2	10:58:48		65.2	65.2	50.4	11:03:48		50.4	50.4
59	10:58:51		59	59	50.8	11:03:51		50.8	50.8
54	10:58:54		54	54	50	11:03:54		50	50
64	10:58:57		64	64	49.1	11:03:57		49.1	49.1
69.3	10:59:00		69.3	69.3	49.4	11:04:00		49.4	49.4
64.4	10:59:03		64.4	64.4	51.7	11:04:03		51.7	51.7
62.3	10:59:06		62.3	62.3	49.9	11:04:06		49.9	49.9
56.5	10:59:09		56.5	56.5	50.4	11:04:09		50.4	50.4
58	10:59:12		58	58	50.7	11:04:12		50.7	50.7
63.8	10:59:15		63.8	63.8	51.1	11:04:15		51.1	51.1
59	10:59:18		59	59	49.6	11:04:18		49.6	49.6
64.2	10:59:21		64.2	64.2	48.5	11:04:21		48.5	48.5
65.7	10:59:24		65.7	65.7	49	11:04:24		49	49
56.8	10:59:27		56.8	56.8	48.7	11:04:27		48.7	48.7
55.2	10:59:30		55.2	55.2	49.1	11:04:30		49.1	49.1
55.2	10:59:33		55.2	55.2	49.1	11:04:33		49.1	49.1
66.1	10:59:36		66.1	66.1	48.9	11:04:36		48.9	48.9
57.8	10:59:39		57.8	57.8	48.9	11:04:39		48.9	48.9
56.6	10:59:42		56.6	56.6	49.4	11:04:42		49.4	49.4
67.7	10:59:45		67.7	67.7	50.3	11:04:45		50.3	50.3
63.7	10:59:48		63.7	63.7	56.9	11:04:48		56.9	56.9
66.1	10:59:51		66.1	66.1	46.3	11:04:51		46.3	46.3
69.1	10:59:54		69.1	69.1	44.9	11:04:54		44.9	44.9
61.7	10:59:57		61.7	61.7	44.9	11:04:57		44.9	44.9
59.8	11:00:00		59.8	59.8	43.9	11:05:00		43.9	43.9
56.8	11:00:03		56.8	56.8	44.5	11:05:03		44.5	44.5
67	11:00:06		67	67	44.2	11:05:06		44.2	44.2
66.4	11:00:09		66.4	66.4	45.1	11:05:09		45.1	45.1
63	11:00:12		63	63	47	11:05:12		47	47
55.4	11:00:15		55.4	55.4	48	11:05:15		48	48
50.6	11:00:18		50.6	50.6	49.4	11:05:18		49.4	49.4
55.7	11:00:21		55.7	55.7	49.1	11:05:21		49.1	49.1
67	11:00:24		67	67	48.7	11:05:24		48.7	48.7
70.7	11:00:27		70.7	70.7	48	11:05:27		48	48
63.3	11:00:30		63.3	63.3	49.4	11:05:30		49.4	49.4
63.2	11:00:33		63.2	63.2	50	11:05:33		50	50
64.5	11:00:36		64.5	64.5	48.6	11:05:36		48.6	48.6
64.8	11:00:39		64.8	64.8	50.3	11:05:39		50.3	50.3
65.8	11:00:42		65.8	65.8	51.7	11:05:42		51.7	51.7
63.5	11:00:45		63.5	63.5	56.6	11:05:45		56.6	56.6
62.4	11:00:48		62.4	62.4	54.9	11:05:48		54.9	54.9
62.4	11:00:51		62.4	62.4	51.8	11:05:51		51.8	51.8
60.3	11:00:54		60.3	60.3	48.3	11:05:54		48.3	48.3
63.4	11:00:57		63.4	63.4	47.9	11:05:57		47.9	47.9
58.8	11:01:00		58.8	58.8	49	11:06:00		49	49
64.8	11:01:03		64.8	64.8	49.7	11:06:03		49.7	49.7
67.7	11:01:06		67.7	67.7	49.8	11:06:06		49.8	49.8
64.3	11:01:09		64.3	64.3	49	11:06:09		49	49
59	11:01:12		59	59	49.5	11:06:12		49.5	49.5
65.1	11:01:15		65.1	65.1	49.4	11:06:15		49.4	49.4
57.4	11:01:18		57.4	57.4	49.6	11:06:18		49.6	49.6
65	11:01:21		65	65	49	11:06:21		49	49
60.1	11:01:24		60.1	60.1	48.2	11:06:24		48.2	48.2
67.3	11:01:27		67.3	67.3	47.5	11:06:27		47.5	47.5
60.2	11:01:30		60.2	60.2	46.8	11:06:30		46.8	46.8
65	11:01:33		65	65	46.5	11:06:33		46.5	46.5
62.3	11:01:36		62.3	62.3	47.5	11:06:36		47.5	47.5

Site 1 - Northeast Side of Project Site (near Lakeshore Drive)					Site 2 - Northwest Side of Project Site (near Preschool)				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
55.9	11:01:39		55.9	55.9	46.7	11:06:39		46.7	46.7
60.1	11:01:42		60.1	60.1	45.6	11:06:42		45.6	45.6
64.8	11:01:45		64.8	64.8	45.6	11:06:45		45.6	45.6
70.9	11:01:48		70.9	70.9	45.5	11:06:48		45.5	45.5
61.9	11:01:51		61.9	61.9	47.1	11:06:51		47.1	47.1
63.5	11:01:54		63.5	63.5	48.6	11:06:54		48.6	48.6
62.2	11:01:57		62.2	62.2	48.7	11:06:57		48.7	48.7
63.5	11:02:00		63.5	63.5	49.5	11:07:00		49.5	49.5
62.1	11:02:03		62.1	62.1	50	11:07:03		50	50
59.1	11:02:06		59.1	59.1	51.2	11:07:06		51.2	51.2
51.4	11:02:09		51.4	51.4	52.2	11:07:09		52.2	52.2
54.9	11:02:12		54.9	54.9	51.1	11:07:12		51.1	51.1
61	11:02:15		61	61	51	11:07:15		51	51
62.6	11:02:18		62.6	62.6	53.2	11:07:18		53.2	53.2
61.6	11:02:21		61.6	61.6	51.5	11:07:21		51.5	51.5
55.2	11:02:24		55.2	55.2	51.8	11:07:24		51.8	51.8
54	11:02:27		54	54	52.2	11:07:27		52.2	52.2
58.5	11:02:30		58.5	58.5	51.2	11:07:30		51.2	51.2
60.7	11:02:33		60.7	60.7	51	11:07:33		51	51
57.4	11:02:36		57.4	57.4	50.5	11:07:36		50.5	50.5
60.8	11:02:39		60.8	60.8	50.1	11:07:39		50.1	50.1
54.2	11:02:42		54.2	54.2	50.2	11:07:42		50.2	50.2
53.8	11:02:45		53.8	53.8	51.5	11:07:45		51.5	51.5
53.7	11:02:48		53.7	53.7	51	11:07:48		51	51
56.2	11:02:51		56.2	56.2	50.1	11:07:51		50.1	50.1
60.7	11:02:54		60.7	60.7	49.4	11:07:54		49.4	49.4
69.3	11:02:57		69.3	69.3	49.1	11:07:57		49.1	49.1
66.4	11:03:00		66.4	66.4	50	11:08:00		50	50
61.1	11:03:03		61.1	61.1	49.6	11:08:03		49.6	49.6
65.6	11:03:06		65.6	65.6	47.7	11:08:06		47.7	47.7
65.1	11:03:09		65.1	65.1	46.3	11:08:09		46.3	46.3
66.8	11:03:12		66.8	66.8	47.7	11:08:12		47.7	47.7
63.8	11:03:15		63.8	63.8	47.3	11:08:15		47.3	47.3
68.2	11:03:18		68.2	68.2	72.3	11:08:18		72.3	72.3
66.6	11:03:21		66.6	66.6	54.6	11:08:21		54.6	54.6
61.2	11:03:24		61.2	61.2	45.2	11:08:24		45.2	45.2
61.7	11:03:27		61.7	61.7	45.3	11:08:27		45.3	45.3
60.4	11:03:30		60.4	60.4	46.5	11:08:30		46.5	46.5
60.9	11:03:33		60.9	60.9	51.9	11:08:33		51.9	51.9
64.4	11:03:36		64.4	64.4	56.2	11:08:36		56.2	56.2
64.9	11:03:39		64.9	64.9	57.4	11:08:39		57.4	57.4
63	11:03:42		63	63	51.7	11:08:42		51.7	51.7
65	11:03:45		65	65	49	11:08:45		49	49
55.2	11:03:48		55.2	55.2	46.7	11:08:48		46.7	46.7
61.4	11:03:51		61.4	61.4	49.6	11:08:51		49.6	49.6
61	11:03:54		61	61	51.3	11:08:54		51.3	51.3
59.1	11:03:57		59.1	59.1	50.9	11:08:57		50.9	50.9
65.6	11:04:00		65.6	65.6	51.5	11:09:00		51.5	51.5
66.1	11:04:03		66.1	66.1	52.1	11:09:03		52.1	52.1
55.2	11:04:06		55.2	55.2	51.2	11:09:06		51.2	51.2
54.8	11:04:09		54.8	54.8	49.7	11:09:09		49.7	49.7
66.6	11:04:12		66.6	66.6	49.3	11:09:12		49.3	49.3
54.7	11:04:15		54.7	54.7	48.5	11:09:15		48.5	48.5
49.1	11:04:18		49.1	49.1	50.1	11:09:18		50.1	50.1
48.6	11:04:21		48.6	48.6	51.5	11:09:21		51.5	51.5
45.9	11:04:24		45.9	45.9	51.3	11:09:24		51.3	51.3
44.4	11:04:27		44.4	44.4	52.4	11:09:27		52.4	52.4
44	11:04:30		44	44	51.1	11:09:30		51.1	51.1
44	11:04:33		44	44	54.9	11:09:33		54.9	54.9
47.3	11:04:36		47.3	47.3	53.1	11:09:36		53.1	53.1
57.9	11:04:39		57.9	57.9	54.5	11:09:39		54.5	54.5
60.5	11:04:42		60.5	60.5	53.2	11:09:42		53.2	53.2
61.6	11:04:45		61.6	61.6	51	11:09:45		51	51
63.7	11:04:48		63.7	63.7	48.9	11:09:48		48.9	48.9
58.3	11:04:51		58.3	58.3	51.2	11:09:51		51.2	51.2
62.2	11:04:54		62.2	62.2	52	11:09:54		52	52
64.9	11:04:57		64.9	64.9	51.4	11:09:57		51.4	51.4
65.6	11:05:00		65.6	65.6	51	11:10:00		51	51
58.3	11:05:03		58.3	58.3	49.9	11:10:03		49.9	49.9
65.1	11:05:06		65.1	65.1	49	11:10:06		49	49
59.7	11:05:09		59.7	59.7	49.5	11:10:09		49.5	49.5
57.8	11:05:12		57.8	57.8	51.2	11:10:12		51.2	51.2
67.5	11:05:15		67.5	67.5	52.1	11:10:15		52.1	52.1
72.5	11:05:18		72.5	72.5	54	11:10:18		54	54
64.5	11:05:21		64.5	64.5	53.3	11:10:21		53.3	53.3
58.8	11:05:24		58.8	58.8	50.6	11:10:24		50.6	50.6
57.6	11:05:27		57.6	57.6	48	11:10:27		48	48
61.8	11:05:30		61.8	61.8	47	11:10:30		47	47
67.2	11:05:33		67.2	67.2	47.1	11:10:33		47.1	47.1
65.4	11:05:36		65.4	65.4	47.6	11:10:36		47.6	47.6
66.7	11:05:39		66.7	66.7	47.5	11:10:39		47.5	47.5
63.1	11:05:42		63.1	63.1	46.9	11:10:42		46.9	46.9
66.4	11:05:45		66.4	66.4	49	11:10:45		49	49
64.8	11:05:48		64.8	64.8	49	11:10:48		49	49
64.2	11:05:51		64.2	64.2	51.2	11:10:51		51.2	51.2
59.2	11:05:54		59.2	59.2	51	11:10:54		51	51
55.2	11:05:57		55.2	55.2	48.6	11:10:57		48.6	48.6
52	11:06:00		52	52	48.8	11:11:00		48.8	48.8
64	11:06:03		64	64	53.1	11:11:03		53.1	53.1
58.8	11:06:06		58.8	58.8	51.9	11:11:06		51.9	51.9
50.1	11:06:09		50.1	50.1	51.5	11:11:09		51.5	51.5
47.1	11:06:12		47.1	47.1	52.6	11:11:12		52.6	52.6
47.4	11:06:15		47.4	47.4	56.3	11:11:15		56.3	56.3
54.7	11:06:18		54.7	54.7	58.4	11:11:18		58.4	58.4
64.8	11:06:21		64.8	64.8	59.6	11:11:21		59.6	59.6

Site 1 - Northeast Side of Project Site (near Lakeshore Drive)					Site 2 - Northwest Side of Project Site (near Preschool)				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
62.4	11:06:24		62.4	62.4	57.5	11:11:24		57.5	57.5
57.8	11:06:27		57.8	57.8	63.8	11:11:27		63.8	63.8
54.4	11:06:30		54.4	54.4	56.6	11:11:30		56.6	56.6
54	11:06:33		54	54	65.6	11:11:33		65.6	65.6
62.4	11:06:36		62.4	62.4	52.2	11:11:36		52.2	52.2
69.6	11:06:39		69.6	69.6	52.7	11:11:39		52.7	52.7
65	11:06:42		65	65	55.1	11:11:42		55.1	55.1
66	11:06:45		66	66	51.5	11:11:45		51.5	51.5
65.4	11:06:48		65.4	65.4	48.7	11:11:48		48.7	48.7
62	11:06:51		62	62	49	11:11:51		49	49
64.9	11:06:54		64.9	64.9	49.5	11:11:54		49.5	49.5
61.8	11:06:57		61.8	61.8	50.9	11:11:57		50.9	50.9
59.4	11:07:00		59.4	59.4	50.6	11:12:00		50.6	50.6
57.9	11:07:03		57.9	57.9	50.9	11:12:03		50.9	50.9
57.7	11:07:06		57.7	57.7	51.8	11:12:06		51.8	51.8
62.5	11:07:09		62.5	62.5	52	11:12:09		52	52
63.1	11:07:12		63.1	63.1	54.1	11:12:12		54.1	54.1
63.6	11:07:15		63.6	63.6	53.6	11:12:15		53.6	53.6
67.2	11:07:18		67.2	67.2	52.4	11:12:18		52.4	52.4
62.8	11:07:21		62.8	62.8	53.2	11:12:21		53.2	53.2
56.7	11:07:24		56.7	56.7	53.8	11:12:24		53.8	53.8
60.2	11:07:27		60.2	60.2	54	11:12:27		54	54
56	11:07:30		56	56	53	11:12:30		53	53
50.4	11:07:33		50.4	50.4	52.8	11:12:33		52.8	52.8
49.8	11:07:36		49.8	49.8	52.3	11:12:36		52.3	52.3
50.6	11:07:39		50.6	50.6	51.4	11:12:39		51.4	51.4
55.2	11:07:42		55.2	55.2	50.5	11:12:42		50.5	50.5
66.9	11:07:45		66.9	66.9	49.1	11:12:45		49.1	49.1
55.8	11:07:48		55.8	55.8	51.9	11:12:48		51.9	51.9
48.4	11:07:51		48.4	48.4	52.3	11:12:51		52.3	52.3
45.8	11:07:54		45.8	45.8	54.7	11:12:54		54.7	54.7
47.7	11:07:57		47.7	47.7	48.7	11:12:57		48.7	48.7
50.9	11:08:00		50.9	50.9	47.2	11:13:00		47.2	47.2
55	11:08:03		55	55	46.3	11:13:03		46.3	46.3
57	11:08:06		57	57	47.4	11:13:06		47.4	47.4
68.2	11:08:09		68.2	68.2	46.6	11:13:09		46.6	46.6
58	11:08:12		58	58	48.9	11:13:12		48.9	48.9
51.6	11:08:15		51.6	51.6	53.7	11:13:15		53.7	53.7
54.6	11:08:18		54.6	54.6	53.5	11:13:18		53.5	53.5
66.3	11:08:21		66.3	66.3	56	11:13:21		56	56
63.2	11:08:24		63.2	63.2	55.9	11:13:24		55.9	55.9
64.6	11:08:27		64.6	64.6	56.7	11:13:27		56.7	56.7
71.1	11:08:30		71.1	71.1	52.8	11:13:30		52.8	52.8
65.6	11:08:33		65.6	65.6	49.2	11:13:33		49.2	49.2
61	11:08:36		61	61	45.7	11:13:36		45.7	45.7
56.3	11:08:39		56.3	56.3	45	11:13:39		45	45
62.1	11:08:42		62.1	62.1	47.2	11:13:42		47.2	47.2
59.2	11:08:45		59.2	59.2	47.3	11:13:45		47.3	47.3
57.9	11:08:48		57.9	57.9	49.3	11:13:48		49.3	49.3
61.5	11:08:51		61.5	61.5	49.4	11:13:51		49.4	49.4
68.1	11:08:54		68.1	68.1	49.7	11:13:54		49.7	49.7
56.2	11:08:57		56.2	56.2	51.7	11:13:57		51.7	51.7
49.7	11:09:00		49.7	49.7	50.6	11:14:00		50.6	50.6
50.5	11:09:03		50.5	50.5	50.3	11:14:03		50.3	50.3
50	11:09:06		50	50	49.9	11:14:06		49.9	49.9
54.3	11:09:09		54.3	54.3	49.9	11:14:09		49.9	49.9
51.4	11:09:12		51.4	51.4	48.9	11:14:12		48.9	48.9
54.5	11:09:15		54.5	54.5	51.2	11:14:15		51.2	51.2
49.3	11:09:18		49.3	49.3	51.5	11:14:18		51.5	51.5
49.3	11:09:21		49.3	49.3	51.2	11:14:21		51.2	51.2
52.6	11:09:24		52.6	52.6	50.2	11:14:24		50.2	50.2
63.9	11:09:27		63.9	63.9	50.2	11:14:27		50.2	50.2
60.8	11:09:30		60.8	60.8	48.4	11:14:30		48.4	48.4
59.6	11:09:33		59.6	59.6	49.2	11:14:33		49.2	49.2
61.4	11:09:36		61.4	61.4	50.6	11:14:36		50.6	50.6
56.6	11:09:39		56.6	56.6	50.8	11:14:39		50.8	50.8
68.9	11:09:42		68.9	68.9	51.2	11:14:42		51.2	51.2
65.9	11:09:45		65.9	65.9	51	11:14:45		51	51
64.1	11:09:48		64.1	64.1	47.9	11:14:48		47.9	47.9
65.8	11:09:51		65.8	65.8	46.4	11:14:51		46.4	46.4
66.5	11:09:54		66.5	66.5	48.2	11:14:54		48.2	48.2
59.3	11:09:57		59.3	59.3	50.5	11:14:57		50.5	50.5
62.9	11:10:00	64.8	62.9	62.9	51.3	11:15:00	54.0	51.3	51.3
60	11:10:03	64.8	60	60	50.7	11:15:03	53.9	50.7	50.7
55.6	11:10:06	64.8	55.6	55.6	51.3	11:15:06	53.9	51.3	51.3
50.5	11:10:09	64.8	50.5	50.5	54.4	11:15:09	53.9	54.4	54.4
50.6	11:10:12	64.8	50.6	50.6	56.9	11:15:12	53.8	56.9	56.9
59.5	11:10:15	64.8	59.5	59.5	55.6	11:15:15	53.7	55.6	55.6
62.4	11:10:18	64.8	62.4	62.4	55.1	11:15:18	53.6	55.1	55.1
65.5	11:10:21	64.8	65.5	65.5	54.7	11:15:21	53.6	54.7	54.7
66.8	11:10:24	64.8	66.8	66.8	51.7	11:15:24	53.4	51.7	51.7
61.9	11:10:27	64.8	61.9	61.9	50.6	11:15:27	53.4	50.6	50.6
60.5	11:10:30	64.8	60.5	60.5	49.6	11:15:30	53.4	49.6	49.6
61.7	11:10:33	64.8	61.7	61.7	49.6	11:15:33	53.3	49.6	49.6
62.1	11:10:36	64.8	62.1	62.1	47.8	11:15:36	53.2	47.8	47.8
57.7	11:10:39	64.8	57.7	57.7	49.4	11:15:39	53.1	49.4	49.4
61.9	11:10:42	64.8	61.9	61.9	50.9	11:15:42	53.1	50.9	50.9
66.4	11:10:45	64.8	66.4	66.4	46.3	11:15:45	53.0	46.3	46.3
66.3	11:10:48	64.8	66.3	66.3	49.2	11:15:48	53.0	49.2	49.2
61.3	11:10:51	64.8	61.3	61.3	49.9	11:15:51	53.0	49.9	49.9
69.3	11:10:54	64.8	69.3	69.3	51	11:15:54	52.9	51	51
67.9	11:10:57	64.8	67.9	67.9	50.4	11:15:57	52.9	50.4	50.4
64.1	11:11:00	64.8	64.1	64.1	50	11:16:00	52.8	50	50
65	11:11:03	64.8	65	65	48.6	11:16:03	52.8	48.6	48.6
60.6	11:11:06	64.8	60.6	60.6	47.6	11:16:06	52.8	47.6	47.6
61.3	11:11:09	64.8	61.3	61.3	47	11:16:09	52.8	47	47
58.1	11:11:12	64.8	58.1	58.1	48.7	11:16:12	52.8	48.7	48.7
61.7	11:11:15	64.8	61.7	61.7	50.2	11:16:15	52.8	50.2	50.2
54.2	11:11:18	64.8	54.2	54.2	50.4	11:16:18	52.8	50.4	50.4
54.1	11:11:21	64.8	54.1	54.1	49	11:16:21	52.8	49	49
60.5	11:11:24	64.8	60.5	60.5	47.3	11:16:24	52.8	47.3	47.3
62	11:11:27	64.8	62	62	47.1	11:16:27	52.8	47.1	47.1
60.5	11:11:30	64.8	60.5	60.5	46.3	11:16:30	52.8	46.3	46.3

APPENDIX C

RCNM Model Construction Noise Calculation Printouts

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/10/2022
Case Description: Lakeshore Dr - 10 Acres Residential - Site Preparation

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Mobile Homes & Preschool to NW	Residential	52.3	52.3	52.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	210	5
Dozer	No	40		81.7	210	5
Dozer	No	40		81.7	210	5
Tractor	No	40	84		210	5
Tractor	No	40	84		210	5
Tractor	No	40	84		210	5
Tractor	No	40	84		210	5

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Dozer	64.2	60.2	N/A	N/A	N/A	N/A
Dozer	64.2	60.2	N/A	N/A	N/A	N/A
Dozer	64.2	60.2	N/A	N/A	N/A	N/A
Tractor	66.5	62.6	N/A	N/A	N/A	N/A
Tractor	66.5	62.6	N/A	N/A	N/A	N/A
Tractor	66.5	62.6	N/A	N/A	N/A	N/A
Tractor	66.5	62.6	N/A	N/A	N/A	N/A
Total	**67**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Single-Family Homes to SE	Residential	52.3	52.3	52.3

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	215	5
Dozer	No	40		81.7	215	5
Dozer	No	40		81.7	215	5
Tractor	No	40	84		215	5
Tractor	No	40	84		215	5
Tractor	No	40	84		215	5
Tractor	No	40	84		215	5

Results

		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		64.0	60.0	N/A	N/A	N/A	N/A
Dozer		64.0	60.0	N/A	N/A	N/A	N/A
Dozer		64.0	60.0	N/A	N/A	N/A	N/A
Tractor		66.3	62.4	N/A	N/A	N/A	N/A
Tractor		66.3	62.4	N/A	N/A	N/A	N/A
Tractor		66.3	62.4	N/A	N/A	N/A	N/A
Tractor		66.3	62.4	N/A	N/A	N/A	N/A
	Total	**66**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multi-Family Homes to SW	Residential	52.3	52.3	52.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	500	0
Dozer	No	40		81.7	500	0
Dozer	No	40		81.7	500	0
Tractor	No	40	84		500	0
Tractor	No	40	84		500	0
Tractor	No	40	84		500	0
Tractor	No	40	84		500	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		61.7	57.7	N/A	N/A	N/A	N/A
Dozer		61.7	57.7	N/A	N/A	N/A	N/A
Dozer		61.7	57.7	N/A	N/A	N/A	N/A
Tractor		64.0	60.0	N/A	N/A	N/A	N/A
Tractor		64.0	60.0	N/A	N/A	N/A	N/A
Tractor		64.0	60.0	N/A	N/A	N/A	N/A
Tractor		64.0	60.0	N/A	N/A	N/A	N/A
	Total	**64**	**68**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/10/2022
Case Description: Lakeshore Dr - 10 Acres Residential - Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Mobile Homes & Preschool to NW	Residential	52.3	52.3	52.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	210	5
Excavator	No	40		80.7	210	5
Grader	No	40	85		210	5
Dozer	No	40		81.7	210	5
Scraper	No	40		83.6	210	5
Scraper	No	40		83.6	210	5
Tractor	No	40	84		210	5
Tractor	No	40	84		210	5

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Excavator	63.2	59.3	N/A	N/A	N/A	N/A
Excavator	63.2	59.3	N/A	N/A	N/A	N/A
Grader	67.5	63.6	N/A	N/A	N/A	N/A
Dozer	64.2	60.2	N/A	N/A	N/A	N/A
Scraper	66.1	62.1	N/A	N/A	N/A	N/A
Scraper	66.1	62.1	N/A	N/A	N/A	N/A
Tractor	66.5	62.6	N/A	N/A	N/A	N/A
Tractor	66.5	62.6	N/A	N/A	N/A	N/A
Total	**68**	**71**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Family Homes to SE	Residential	52.3	52.3	52.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40.0		80.7	215	5
Excavator	No	40		80.7	215	5
Grader	No	40.0	85		215	5
Dozer	No	40		81.7	215	5
Scraper	No	40		83.6	215	5
Scraper	No	40		83.6	215	5
Tractor	No	40	84		215	5
Tractor	No	40	84		215	5

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		63.0	59.1	N/A	N/A	N/A	N/A
Excavator		63.0	59.1	N/A	N/A	N/A	N/A
Grader		67.3	63.4	N/A	N/A	N/A	N/A
Dozer		64.0	60.0	N/A	N/A	N/A	N/A
Scraper		65.9	61.9	N/A	N/A	N/A	N/A
Scraper		65.9	61.9	N/A	N/A	N/A	N/A
Tractor		66.3	62.4	N/A	N/A	N/A	N/A
Tractor		66.3	62.4	N/A	N/A	N/A	N/A
	Total	**67**	**71**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multi-Family Homes to SW	Residential	52.3	52.3	52.3

			Equipment Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	500	0
Excavator	No	40		80.7	500	0
Grader	No	40	85		500	0
Dozer	No	40		81.7	500	0
Scraper	No	40		83.6	500	0
Scraper	No	40		83.6	500	0
Tractor	No	40	84		500	0
Tractor	No	40	84		500	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		60.7	56.7	N/A	N/A	N/A	N/A
Excavator		60.7	56.7	N/A	N/A	N/A	N/A
Grader		65.0	61.0	N/A	N/A	N/A	N/A
Dozer		61.7	57.7	N/A	N/A	N/A	N/A
Scraper		63.6	59.6	N/A	N/A	N/A	N/A
Scraper		63.6	59.6	N/A	N/A	N/A	N/A
Tractor		64.0	60.0	N/A	N/A	N/A	N/A
Tractor		64.0	60.0	N/A	N/A	N/A	N/A
	Total	**65**	**68**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/10/2022
Case Description: Lakeshore Dr - 10 Acres Residential - Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Mobile Homes & Preschool to NW	Residential	52.3	52.3	52.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	210	5
Gradall	No	40		83.4	210	5
Gradall	No	40		83.4	210	5
Gradall	No	40		83.4	210	5
Generator	No	50		80.6	210	5
Tractor	No	40	84		210	5
Front End Loader	No	40		79.1	210	5
Backhoe	No	40		77.6	210	5
Welder / Torch	No	40		74	210	5

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Crane	63.1	55.1	N/A	N/A	N/A	N/A
Gradall	65.9	62.0	N/A	N/A	N/A	N/A
Gradall	65.9	62.0	N/A	N/A	N/A	N/A
Gradall	65.9	62.0	N/A	N/A	N/A	N/A
Generator	63.2	60.2	N/A	N/A	N/A	N/A
Tractor	66.5	62.6	N/A	N/A	N/A	N/A
Front End Loader	61.6	57.7	N/A	N/A	N/A	N/A
Backhoe	60.1	56.1	N/A	N/A	N/A	N/A
Welder / Torch	56.5	52.6	N/A	N/A	N/A	N/A
Total	**67**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Single-Family Homes to SE	Residential	52.3	52	52.3

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	215	5
Gradall	No	40		83.4	215	5
Gradall	No	40		83.4	215	5
Gradall	No	40		83.4	215	5
Generator	No	50		80.6	215	5
Tractor	No	40	84		215	5
Front End Loader	No	40		79.1	215	5
Backhoe	No	40		77.6	215	5
Welder / Torch	No	40		74	215	5

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	62.9	54.9	N/A	N/A	N/A	N/A
Gradall	65.7	61.8	N/A	N/A	N/A	N/A
Gradall	65.7	61.8	N/A	N/A	N/A	N/A
Gradall	65.7	61.8	N/A	N/A	N/A	N/A
Generator	63.0	60.0	N/A	N/A	N/A	N/A
Tractor	66.3	62.4	N/A	N/A	N/A	N/A
Front End Loader	61.4	57.5	N/A	N/A	N/A	N/A
Backhoe	59.9	55.9	N/A	N/A	N/A	N/A
Welder / Torch	56.3	52.4	N/A	N/A	N/A	N/A
Total	**66**	**69**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multi-Family Homes to SW	Residential	52.3	52.3	52.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	500	0
Gradall	No	40		83.4	500	0
Gradall	No	40		83.4	500	0
Gradall	No	40		83.4	500	0
Generator	No	50		80.6	500	0
Tractor	No	40	84		500	0
Front End Loader	No	40		79.1	500	0
Backhoe	No	40		77.6	500	0
Welder / Torch	No	40		74	500	0

	Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	60.6	52.6	N/A	N/A	N/A	N/A
Gradall	63.4	59.4	N/A	N/A	N/A	N/A
Gradall	63.4	59.4	N/A	N/A	N/A	N/A
Gradall	63.4	59.4	N/A	N/A	N/A	N/A
Generator	60.6	57.6	N/A	N/A	N/A	N/A
Tractor	64.0	60.0	N/A	N/A	N/A	N/A
Front End Loader	59.1	55.1	N/A	N/A	N/A	N/A
Backhoe	57.6	53.6	N/A	N/A	N/A	N/A
Welder / Torch	54.0	50.0	N/A	N/A	N/A	N/A
Total	**64**	**67**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/10/2022
Case Description: Lakeshore Dr - 10 Acres Residential - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Mobile Homes & Preschool to NW	Residential	52.3	52.3	52.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	210	5
Paver	No	50		77.2	210	5
Paver	No	50		77.2	210	5
Paver	No	50		77.2	210	5
Roller	No	20		80	210	5
Roller	No	20		80	210	5

Equipment	Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Paver	59.8	56.7	N/A	N/A	N/A	N/A
Paver	59.8	56.7	N/A	N/A	N/A	N/A
Paver	59.8	56.7	N/A	N/A	N/A	N/A
Paver	59.8	56.7	N/A	N/A	N/A	N/A
Roller	62.5	55.5	N/A	N/A	N/A	N/A
Roller	62.5	55.5	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.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Family Homes to SE	Residential	52	52	52.3

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	215	5
Paver	No	50		77.2	215	5
Paver	No	50		77.2	215	5
Paver	No	50		77.2	215	5
Roller	No	20		80	215	5
Roller	No	20		80	215	5

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	59.6	56.5	N/A	N/A	N/A	N/A
Paver	59.6	56.5	N/A	N/A	N/A	N/A
Paver	59.6	56.5	N/A	N/A	N/A	N/A
Paver	59.6	56.5	N/A	N/A	N/A	N/A
Roller	62.3	55.3	N/A	N/A	N/A	N/A
Roller	62.3	55.3	N/A	N/A	N/A	N/A
Total	**62**	**64**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Multi-Family Homes to SW	Residential	52.3	52.3	52.3

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	500	0
Paver	No	50		77.2	500	0
Paver	No	50		77.2	500	0
Paver	No	50		77.2	500	0
Roller	No	20		80	500	0
Roller	No	20		80	500	0

Results

	Calculated (dBA)		Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	57.2	54.2	N/A	N/A	N/A	N/A
Paver	57.2	54.2	N/A	N/A	N/A	N/A
Paver	57.2	54.2	N/A	N/A	N/A	N/A
Paver	57.2	54.2	N/A	N/A	N/A	N/A
Roller	60.0	53.0	N/A	N/A	N/A	N/A
Roller	60.0	53.0	N/A	N/A	N/A	N/A
Total	**60**	**62**	N/A	N/A	N/A	N/A

Noise Limits (dBA)

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/10/2022
Case Description: Lakeshore Dr - 10 Acres Residential - Painting

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Mobile Homes & Preschool to NW	Residential	52.3	52.3	52.3

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	210	5

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		60.2	56.2	N/A	N/A	N/A	N/A
	Total	**60**	**56**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Single-Family Homes to SE	Residential	52.3	52.3	52.3

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	215	5

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		60.0	56.0	N/A	N/A	N/A	N/A
	Total	**60**	**56**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Multi-Family Homes to SW	Residential	52.3	52.3	52.3

			Equipment Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	500	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		57.7	53.7	N/A	N/A	N/A	N/A
	Total	**58**	**54**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX D

FHWA Model Offsite Traffic Noise Calculation Printouts

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

Scenario: EXISTING CONDITIONS

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

	Vehicle Mix 1 (Vehicle Mix 1 (Local))				Vehicle Mix 2 (Vehicle Mix 2 (Arterial))				Vehicle Mix 3 (SR-74)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	63.75%	13.07%	15.28%	92.10%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	3.53%	0.64%	1.79%	5.96%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	1.06%	0.10%	0.77%	1.94%

Road Name: Lakeshore Drive **Segment: West of Machado Street**
Average Daily Traffic: 13070 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.54 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	-0.53	-0.67	-1.20	65.0	62.6	61.3	55.2	63.7	64.31	70 dBA:	**26**	**28**
Medium Trucks	76.31	-15.39	-0.67	-1.20	59.1	39.8	32.1	41.3	47.4	47.46	65 dBA:	**56**	**61**
Heavy Trucks	81.16	-13.17	-0.67	-1.20	66.1	49.1	41.3	50.6	56.7	56.74	60 dBA:	**121**	**131**
				Total:	**69.0**	**62.8**	**61.3**	**56.6**	**64.6**	**65.1**	55 dBA:	**260**	**282**

Road Name: Lakeshore Drive **Segment: West of Gunnerson Street**
Average Daily Traffic: 18940 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 58.13 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	1.09	-1.08	-1.20	66.2	63.8	62.5	56.4	64.9	65.5	70 dBA:	**36**	**40**
Medium Trucks	76.31	-13.78	-1.08	-1.20	60.2	41.0	33.3	42.5	48.6	48.7	65 dBA:	**79**	**85**
Heavy Trucks	81.16	-11.56	-1.08	-1.20	67.3	50.3	42.5	51.7	57.9	57.9	60 dBA:	**169**	**184**
				Total:	**70.2**	**64.0**	**62.5**	**57.8**	**65.8**	**66.3**	55 dBA:	**365**	**395**

Road Name: Lakeshore Drive **Segment: East of Gunnerson Street**
Average Daily Traffic: 19000 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 45.6 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	1.10	0.50	-1.20	67.8	65.4	64.1	58.0	66.5	67.1	70 dBA:	**40**	**43**
Medium Trucks	76.31	-13.77	0.50	-1.20	61.8	42.6	34.9	44.1	50.2	50.2	65 dBA:	**86**	**93**
Heavy Trucks	81.16	-11.55	0.50	-1.20	68.9	51.9	44.1	53.3	59.5	59.5	60 dBA:	**185**	**201**
				Total:	**71.8**	**65.6**	**64.1**	**59.4**	**67.3**	**67.9**	55 dBA:	**399**	**433**

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

Scenario: EXISTING CONDITIONS

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

Road Name: Lakeshore Drive **Segment: East of Highway 74**
Average Daily Traffic: 14320 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 1 Roadway Classification: Secondary

	NOISE PARAMETERS AT 130 FEET FROM CENTERLINE (Equiv. Lane Dist: 128.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	67.36	0.12	-6.25	-1.20	60.0	57.9	56.6	50.6	59.0	59.6	70 dBA:	**24**	**27**
Medium Trucks	76.31	-17.12	-6.25	-1.20	51.7	30.5	36.5	18.2	31.4	34.1	65 dBA:	**52**	**57**
Heavy Trucks	81.16	-21.07	-6.25	-1.20	52.6	27.3	23.9	28.5	34.7	34.8	60 dBA:	**112**	**123**
				Total:	**61.3**	**57.9**	**56.6**	**50.6**	**59.0**	**59.7**	55 dBA:	**241**	**266**

Road Name: Machado Street **Segment: South of Lakeshore Drive**
Average Daily Traffic: 9670 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 42.43 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	-1.83	0.97	-1.20	65.3	62.9	61.6	55.6	64.0	64.6	70 dBA:	**25**	**27**
Medium Trucks	76.31	-16.70	0.97	-1.20	59.4	40.2	32.4	41.6	47.8	47.8	65 dBA:	**54**	**59**
Heavy Trucks	81.16	-14.48	0.97	-1.20	66.4	49.5	41.7	50.9	57.0	57.1	60 dBA:	**116**	**126**
				Total:	**69.4**	**63.1**	**61.7**	**57.0**	**64.9**	**65.4**	55 dBA:	**251**	**272**

Road Name: Gunnerson Street **Segment: North of Lakeshore Drive**
Average Daily Traffic: 1620 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 1 Roadway Classification: Collector

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.08 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	-9.34	-0.61	-1.20	56.2	54.1	52.8	46.8	55.2	55.8	70 dBA:	**6**	**6**
Medium Trucks	76.31	-26.58	-0.61	-1.20	47.9	26.7	32.7	14.4	27.5	30.3	65 dBA:	**12**	**13**
Heavy Trucks	81.16	-30.54	-0.61	-1.20	48.8	23.5	20.1	24.7	30.9	31.0	60 dBA:	**26**	**29**
				Total:	**57.4**	**54.1**	**52.8**	**46.8**	**55.2**	**55.8**	55 dBA:	**57**	**62**

Road Name: Highway 74 **Segment: North of Lakeshore Drive**
Average Daily Traffic: 23300 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 3 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 65 FEET FROM CENTERLINE (Equiv. Lane Dist: 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	1.99	-0.36	-1.20	67.8	65.0	64.2	60.1	67.6	68.1	70 dBA:	**47**	**51**
Medium Trucks	76.31	-9.90	-0.36	-1.20	64.9	49.5	48.2	47.8	54.5	54.8	65 dBA:	**101**	**109**
Heavy Trucks	81.16	-14.78	-0.36	-1.20	64.8	44.3	40.1	44.2	50.5	50.6	60 dBA:	**218**	**235**
				Total:	**70.8**	**65.2**	**64.3**	**60.4**	**67.9**	**68.4**	55 dBA:	**470**	**506**

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

Scenario: EXISTING CONDITIONS

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

Road Name: Highway 74 **Segment: South of Lakeshore Drive**

Average Daily Traffic: 25540 Vehicles | Vehicle Speed: 40 MPH | Vehicle Mix: 3 | Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.78 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	2.39	1.55	-1.20	70.1	67.4	66.5	62.4	69.9	70.4	70 dBA:	**57**	**61**
Medium Trucks	76.31	-9.50	1.55	-1.20	67.2	51.9	50.5	50.2	56.8	57.1	65 dBA:	**122**	**132**
Heavy Trucks	81.16	-14.39	1.55	-1.20	67.1	46.6	42.4	46.5	52.8	52.9	60 dBA:	**263**	**284**
				Total:	**73.1**	**67.5**	**66.6**	**62.8**	**70.2**	**70.7**	55 dBA:	**567**	**611**

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

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

	Vehicle Mix 1 (Vehicle Mix 1 (Local))				Vehicle Mix 2 (Vehicle Mix 2 (Arterial))				Vehicle Mix 3 (SR-74)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	63.75%	13.07%	15.28%	92.10%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	3.53%	0.64%	1.79%	5.96%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	1.06%	0.10%	0.77%	1.94%

Road Name: Lakeshore Drive **Segment: West of Machado Street**
Average Daily Traffic: 13272 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.54 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	-0.46	-0.67	-1.20	65.0	62.7	61.4	55.3	63.7	64.4	70 dBA:	**26**	**28**
Medium Trucks	76.31	-15.33	-0.67	-1.20	59.1	39.9	32.1	41.3	47.5	47.5	65 dBA:	**57**	**61**
Heavy Trucks	81.16	-13.11	-0.67	-1.20	66.2	49.2	41.4	50.6	56.8	56.8	60 dBA:	**122**	**132**
				Total:	**69.1**	**62.9**	**61.4**	**56.7**	**64.6**	**65.2**	55 dBA:	**263**	**285**

Road Name: Lakeshore Drive **Segment: West of Gunnerson Street**
Average Daily Traffic: 19192 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 58.13 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	1.14	-1.08	-1.20	66.2	63.8	62.6	56.5	64.9	65.6	70 dBA:	**37**	**40**
Medium Trucks	76.31	-13.72	-1.08	-1.20	60.3	41.1	33.3	42.5	48.7	48.7	65 dBA:	**79**	**86**
Heavy Trucks	81.16	-11.51	-1.08	-1.20	67.4	50.4	42.6	51.8	58.0	58.0	60 dBA:	**171**	**185**
				Total:	**70.3**	**64.1**	**62.6**	**57.9**	**65.8**	**66.3**	55 dBA:	**368**	**399**

Road Name: Lakeshore Drive **Segment: East of Gunnerson Street**
Average Daily Traffic: 19706 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 45.6 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	1.26	0.50	-1.20	67.9	65.5	64.2	58.2	66.6	67.3	70 dBA:	**41**	**44**
Medium Trucks	76.31	-13.61	0.50	-1.20	62.0	42.8	35.0	44.2	50.4	50.4	65 dBA:	**88**	**96**
Heavy Trucks	81.16	-11.39	0.50	-1.20	69.1	52.1	44.3	53.5	59.7	59.7	60 dBA:	**190**	**206**
				Total:	**72.0**	**65.8**	**64.3**	**59.6**	**67.5**	**68.0**	55 dBA:	**409**	**444**

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

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

Road Name: Lakeshore Drive **Segment: East of Highway 74**
Average Daily Traffic: 14421 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 1 Roadway Classification: Secondary

	NOISE PARAMETERS AT 130 FEET FROM CENTERLINE (Equiv. Lane Dist: 128.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	67.36	0.15	-6.25	-1.20	60.1	57.9	56.6	50.6	59.0	59.7	70 dBA:	**24**	**27**
Medium Trucks	76.31	-17.09	-6.25	-1.20	51.8	30.5	36.5	18.3	31.4	34.1	65 dBA:	**52**	**57**
Heavy Trucks	81.16	-21.04	-6.25	-1.20	52.7	27.3	23.9	28.6	34.8	34.9	60 dBA:	**112**	**124**
				Total:	**61.3**	**57.9**	**56.7**	**50.6**	**59.1**	**59.7**	55 dBA:	**242**	**267**

Road Name: Machado Street **Segment: South of Lakeshore Drive**
Average Daily Traffic: 9720 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 42.43 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	-1.81	0.97	-1.20	65.3	62.9	61.6	55.6	64.0	64.7	70 dBA:	**25**	**27**
Medium Trucks	76.31	-16.68	0.97	-1.20	59.4	40.2	32.4	41.6	47.8	47.8	65 dBA:	**54**	**59**
Heavy Trucks	81.16	-14.46	0.97	-1.20	66.5	49.5	41.7	50.9	57.1	57.1	60 dBA:	**117**	**127**
				Total:	**69.4**	**63.2**	**61.7**	**57.0**	**64.9**	**65.4**	55 dBA:	**252**	**273**

Road Name: Gunnerson Street **Segment: North of Lakeshore Drive**
Average Daily Traffic: 1670 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 1 Roadway Classification: Collector

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.08 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	-9.21	-0.61	-1.20	56.3	54.2	52.9	46.9	55.3	55.9	70 dBA:	**6**	**6**
Medium Trucks	76.31	-26.45	-0.61	-1.20	48.0	26.8	32.8	14.5	27.7	30.4	65 dBA:	**12**	**14**
Heavy Trucks	81.16	-30.41	-0.61	-1.20	48.9	23.6	20.2	24.8	31.0	31.1	60 dBA:	**27**	**30**
				Total:	**57.6**	**54.2**	**52.9**	**46.9**	**55.3**	**56.0**	55 dBA:	**58**	**64**

Road Name: Highway 74 **Segment: North of Lakeshore Drive**
Average Daily Traffic: 23653 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 3 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 65 FEET FROM CENTERLINE (Equiv. Lane Dist: 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	2.06	-0.36	-1.20	67.9	65.1	64.2	60.2	67.7	68.2	70 dBA:	**47**	**51**
Medium Trucks	76.31	-9.83	-0.36	-1.20	64.9	49.6	48.2	47.9	54.6	54.8	65 dBA:	**102**	**110**
Heavy Trucks	81.16	-14.72	-0.36	-1.20	64.9	44.3	40.2	44.2	50.6	50.7	60 dBA:	**220**	**237**
				Total:	**70.9**	**65.3**	**64.4**	**60.5**	**68.0**	**68.4**	55 dBA:	**475**	**511**

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

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

Road Name: Highway 74 **Segment: South of Lakeshore Drive**

Average Daily Traffic: 25742 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 3 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.78 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	2.42	1.55	-1.20	70.1	67.4	66.5	62.4	69.9	70.4	70 dBA:	**57**	**61**
Medium Trucks	76.31	-9.46	1.55	-1.20	67.2	51.9	50.5	50.2	56.8	57.1	65 dBA:	**123**	**132**
Heavy Trucks	81.16	-14.35	1.55	-1.20	67.2	46.6	42.5	46.5	52.9	53.0	60 dBA:	**264**	**285**
				Total:	**73.2**	**67.5**	**66.6**	**62.8**	**70.2**	**70.7**	55 dBA:	**570**	**614**

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

Scenario: YEAR 2024 CUMULATIVE WITHOUT PROJECT

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

	Vehicle Mix 1 (Vehicle Mix 1 (Local))				Vehicle Mix 2 (Vehicle Mix 2 (Arterial))				Vehicle Mix 3 (SR-74)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	63.75%	13.07%	15.28%	92.10%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	3.53%	0.64%	1.79%	5.96%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	1.06%	0.10%	0.77%	1.94%

Road Name: Lakeshore Drive **Segment: West of Machado Street**
Average Daily Traffic: 17238 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.54 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	0.68	-0.67	-1.20	66.2	63.8	62.5	56.4	64.9	65.5	70 dBA:	**31**	**34**
Medium Trucks	76.31	-14.19	-0.67	-1.20	60.3	41.0	33.3	42.5	48.6	48.7	65 dBA:	**67**	**73**
Heavy Trucks	81.16	-11.97	-0.67	-1.20	67.3	50.3	42.5	51.8	57.9	57.9	60 dBA:	**145**	**157**
				Total:	**70.2**	**64.0**	**62.6**	**57.8**	**65.8**	**66.3**	55 dBA:	**313**	**339**

Road Name: Lakeshore Drive **Segment: West of Gunnerson Street**
Average Daily Traffic: 23678 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 58.13 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	2.06	-1.08	-1.20	67.1	64.8	63.5	57.4	65.8	66.5	70 dBA:	**42**	**46**
Medium Trucks	76.31	-12.81	-1.08	-1.20	61.2	42.0	34.2	43.4	49.6	49.6	65 dBA:	**91**	**99**
Heavy Trucks	81.16	-10.59	-1.08	-1.20	68.3	51.3	43.5	52.7	58.9	58.9	60 dBA:	**196**	**213**
				Total:	**71.2**	**65.0**	**63.5**	**58.8**	**66.7**	**67.2**	55 dBA:	**423**	**459**

Road Name: Lakeshore Drive **Segment: East of Gunnerson Street**
Average Daily Traffic: 23884 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 45.6 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	2.09	0.50	-1.20	68.8	66.4	65.1	59.0	67.5	68.1	70 dBA:	**47**	**50**
Medium Trucks	76.31	-12.77	0.50	-1.20	62.8	43.6	35.8	45.1	51.2	51.2	65 dBA:	**100**	**109**
Heavy Trucks	81.16	-10.56	0.50	-1.20	69.9	52.9	45.1	54.3	60.5	60.5	60 dBA:	**216**	**234**
				Total:	**72.8**	**66.6**	**65.1**	**60.4**	**68.3**	**68.9**	55 dBA:	**465**	**504**

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

Scenario: YEAR 2024 CUMULATIVE WITHOUT PROJECT

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

Road Name: Lakeshore Drive **Segment: East of Highway 74**
Average Daily Traffic: 18129 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 1 Roadway Classification: Secondary

	NOISE PARAMETERS AT 130 FEET FROM CENTERLINE (Equiv. Lane Dist: 128.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	67.36	1.14	-6.25	-1.20	61.1	58.9	57.6	51.6	60.0	60.7	70 dBA:	**28**	**31**
Medium Trucks	76.31	-16.09	-6.25	-1.20	52.8	31.5	37.5	19.2	32.4	35.1	65 dBA:	**61**	**67**
Heavy Trucks	81.16	-20.05	-6.25	-1.20	53.7	28.3	24.9	29.6	35.8	35.9	60 dBA:	**131**	**144**
				Total:	**62.3**	**58.9**	**57.7**	**51.6**	**60.0**	**60.7**	55 dBA:	**282**	**311**

Road Name: Machado Street **Segment: South of Lakeshore Drive**
Average Daily Traffic: 10830 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 42.43 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	-1.34	0.97	-1.20	65.8	63.4	62.1	56.1	64.5	65.1	70 dBA:	**27**	**29**
Medium Trucks	76.31	-16.21	0.97	-1.20	59.9	40.7	32.9	42.1	48.2	48.3	65 dBA:	**58**	**63**
Heavy Trucks	81.16	-13.99	0.97	-1.20	66.9	49.9	42.2	51.4	57.5	57.6	60 dBA:	**126**	**136**
				Total:	**69.9**	**63.6**	**62.2**	**57.5**	**65.4**	**65.9**	55 dBA:	**270**	**293**

Road Name: Gunnerson Street **Segment: North of Lakeshore Drive**
Average Daily Traffic: 1820 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 1 Roadway Classification: Collector

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.08 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	-8.84	-0.61	-1.20	56.7	54.6	53.3	47.3	55.7	56.3	70 dBA:	**6**	**7**
Medium Trucks	76.31	-26.08	-0.61	-1.20	48.4	27.2	33.2	14.9	28.0	30.8	65 dBA:	**13**	**15**
Heavy Trucks	81.16	-30.03	-0.61	-1.20	49.3	24.0	20.6	25.2	31.4	31.5	60 dBA:	**28**	**31**
				Total:	**57.9**	**54.6**	**53.3**	**47.3**	**55.7**	**56.3**	55 dBA:	**61**	**67**

Road Name: Highway 74 **Segment: North of Lakeshore Drive**
Average Daily Traffic: 27117 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 3 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 65 FEET FROM CENTERLINE (Equiv. Lane Dist: 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	2.65	-0.36	-1.20	68.5	65.7	64.8	60.7	68.3	68.8	70 dBA:	**52**	**56**
Medium Trucks	76.31	-9.24	-0.36	-1.20	65.5	50.2	48.8	48.5	55.2	55.4	65 dBA:	**112**	**121**
Heavy Trucks	81.16	-14.13	-0.36	-1.20	65.5	44.9	40.8	44.8	51.2	51.3	60 dBA:	**241**	**260**
				Total:	**71.5**	**65.9**	**65.0**	**61.1**	**68.5**	**69.0**	55 dBA:	**520**	**560**

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

Scenario: YEAR 2024 CUMULATIVE WITHOUT PROJECT

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

Road Name: Highway 74 **Segment: South of Lakeshore Drive**

Average Daily Traffic: 31818 Vehicles | Vehicle Speed: 40 MPH | Vehicle Mix: 3 | Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.78 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	3.34	1.55	-1.20	71.1	68.3	67.4	63.4	70.9	71.4	70 dBA:	**66**	**71**
Medium Trucks	76.31	-8.54	1.55	-1.20	68.1	52.8	51.4	51.1	57.8	58.0	65 dBA:	**141**	**152**
Heavy Trucks	81.16	-13.43	1.55	-1.20	68.1	47.5	43.4	47.4	53.8	53.9	60 dBA:	**305**	**328**
				Total:	**74.1**	**68.5**	**67.6**	**63.7**	**71.2**	**71.6**	55 dBA:	**656**	**707**

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

Scenario: YEAR 2024 CUMULATIVE WITH PROJECT

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

	Vehicle Mix 1 (Vehicle Mix 1 (Local))				Vehicle Mix 2 (Vehicle Mix 2 (Arterial))				Vehicle Mix 3 (SR-74)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	Evening	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	63.75%	13.07%	15.28%	92.10%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	3.53%	0.64%	1.79%	5.96%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	1.06%	0.10%	0.77%	1.94%

Road Name: Lakeshore Drive **Segment: West of Machado Street**
Average Daily Traffic: 17440 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.54 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	0.73	-0.67	-1.20	66.2	63.8	62.6	56.5	64.9	65.6	70 dBA:	**32**	**34**
Medium Trucks	76.31	-14.14	-0.67	-1.20	60.3	41.1	33.3	42.5	48.7	48.7	65 dBA:	**68**	**74**
Heavy Trucks	81.16	-11.92	-0.67	-1.20	67.4	50.4	42.6	51.8	58.0	58.0	60 dBA:	**146**	**159**
				Total:	**70.3**	**64.1**	**62.6**	**57.9**	**65.8**	**66.3**	55 dBA:	**315**	**342**

Road Name: Lakeshore Drive **Segment: West of Gunnerson Street**
Average Daily Traffic: 23930 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 58.13 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	2.10	-1.08	-1.20	67.2	64.8	63.5	57.5	65.9	66.5	70 dBA:	**43**	**46**
Medium Trucks	76.31	-12.77	-1.08	-1.20	61.3	42.1	34.3	43.5	49.6	49.7	65 dBA:	**92**	**100**
Heavy Trucks	81.16	-10.55	-1.08	-1.20	68.3	51.3	43.6	52.8	58.9	59.0	60 dBA:	**198**	**215**
				Total:	**71.3**	**65.0**	**63.6**	**58.9**	**66.8**	**67.3**	55 dBA:	**426**	**462**

Road Name: Lakeshore Drive **Segment: East of Gunnerson Street**
Average Daily Traffic: 24590 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 45.6 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	2.22	0.50	-1.20	68.9	66.5	65.2	59.2	67.6	68.2	70 dBA:	**47**	**51**
Medium Trucks	76.31	-12.65	0.50	-1.20	63.0	43.8	36.0	45.2	51.3	51.4	65 dBA:	**102**	**111**
Heavy Trucks	81.16	-10.43	0.50	-1.20	70.0	53.0	45.3	54.5	60.6	60.7	60 dBA:	**220**	**239**
				Total:	**73.0**	**66.7**	**65.3**	**60.6**	**68.5**	**69.0**	55 dBA:	**474**	**514**

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

Scenario: YEAR 2024 CUMULATIVE WITH PROJECT

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

Road Name: Lakeshore Drive **Segment: East of Highway 74**
Average Daily Traffic: 18230 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 1 Roadway Classification: Secondary

	NOISE PARAMETERS AT 130 FEET FROM CENTERLINE (Equiv. Lane Dist: 128.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	67.36	1.17	-6.25	-1.20	61.1	59.0	57.6	51.6	60.1	60.7	70 dBA:	**28**	**31**
Medium Trucks	76.31	-16.07	-6.25	-1.20	52.8	31.5	37.6	19.3	32.4	35.2	65 dBA:	**61**	**67**
Heavy Trucks	81.16	-20.03	-6.25	-1.20	53.7	28.3	24.9	29.6	35.8	35.9	60 dBA:	**131**	**145**
				Total:	**62.3**	**59.0**	**57.7**	**51.7**	**60.1**	**60.7**	55 dBA:	**283**	**312**

Road Name: Machado Street **Segment: South of Lakeshore Drive**
Average Daily Traffic: 10880 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 42.43 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	-1.32	0.97	-1.20	65.8	63.4	62.1	56.1	64.5	65.1	70 dBA:	**27**	**29**
Medium Trucks	76.31	-16.19	0.97	-1.20	59.9	40.7	32.9	42.1	48.3	48.3	65 dBA:	**58**	**63**
Heavy Trucks	81.16	-13.97	0.97	-1.20	67.0	50.0	42.2	51.4	57.5	57.6	60 dBA:	**126**	**137**
				Total:	**69.9**	**63.6**	**62.2**	**57.5**	**65.4**	**65.9**	55 dBA:	**271**	**294**

Road Name: Gunnerson Street **Segment: North of Lakeshore Drive**
Average Daily Traffic: 1870 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 1 Roadway Classification: Collector

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.08 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	-8.72	-0.61	-1.20	56.8	54.7	53.4	47.4	55.8	56.4	70 dBA:	**6**	**7**
Medium Trucks	76.31	-25.96	-0.61	-1.20	48.5	27.3	33.3	15.0	28.2	30.9	65 dBA:	**13**	**15**
Heavy Trucks	81.16	-29.92	-0.61	-1.20	49.4	24.1	20.7	25.3	31.5	31.6	60 dBA:	**29**	**32**
				Total:	**58.1**	**54.7**	**53.4**	**47.4**	**55.8**	**56.4**	55 dBA:	**62**	**69**

Road Name: Highway 74 **Segment: North of Lakeshore Drive**
Average Daily Traffic: 27470 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 3 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 65 FEET FROM CENTERLINE (Equiv. Lane Dist: 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	2.71	-0.36	-1.20	68.5	65.8	64.9	60.8	68.3	68.8	70 dBA:	**52**	**57**
Medium Trucks	76.31	-9.18	-0.36	-1.20	65.6	50.3	48.9	48.6	55.2	55.5	65 dBA:	**113**	**122**
Heavy Trucks	81.16	-14.07	-0.36	-1.20	65.5	45.0	40.8	44.9	51.2	51.3	60 dBA:	**243**	**262**
				Total:	**71.5**	**65.9**	**65.0**	**61.2**	**68.6**	**69.1**	55 dBA:	**524**	**565**

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

Scenario: YEAR 2024 CUMULATIVE WITH PROJECT

Project: Lakeshore Drive - 10 Acres
Site Conditions: Soft

Road Name: Highway 74 **Segment: South of Lakeshore Drive**

Average Daily Traffic: 32020 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 3 Roadway Classification: Urban Arterial

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 38.78 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	3.37	1.55	-1.20	71.1	68.3	67.5	63.4	70.9	71.4	70 dBA:	**66**	**71**
Medium Trucks	76.31	-8.52	1.55	-1.20	68.1	52.8	51.4	51.1	57.8	58.0	65 dBA:	**142**	**153**
Heavy Trucks	81.16	-13.40	1.55	-1.20	68.1	47.6	43.4	47.5	53.8	53.9	60 dBA:	**306**	**330**
				Total:	**74.1**	**68.5**	**67.6**	**63.7**	**71.2**	**71.7**	55 dBA:	**659**	**710**

APPENDIX E

FHWA Model Onsite Traffic Noise Calculation Printouts

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

Road Name: Lakeshore Drive West
Building: 1

Project Name: Lakeshore Dr
Job Number: 22013

NOISE MODEL INPUTS

Highway Data

Average Daily Traffic:	23,930	vehicles
Peak Hour Volume:	2,393	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Vehicle Mix

	Day	Evening	Night	Daily
Autos:	63.8%	13.1%	15.3%	92.1%
Medium Trucks:	3.5%	0.6%	1.8%	6.0%
Heavy Trucks:	1.1%	0.1%	0.8%	1.9%

Site Data

Barrier Height:	**6**	**feet**
Barrier Type(Wall/Berm):	Wall	
Site Conditions(Hard/Soft):	Soft	
Centerline (C.L.) Dist. to Barrier:	69	feet
C.L. Dist. To Observer (Backyard):	79	feet
Barrier Dist. To Observer (Backyard):	10	feet
C.L. Dist. To Observer (Structure):	80.5	feet
Barrier Dist. To Observer (Structure):	11.5	feet
Road Grade:	0.00	%
Left View:	-90	degrees
Right View:	90	degrees

Elevations

Barrier Base Elevation:	0.0	feet
Road Elevation:	0.0	feet
Noise Source Elevation above Road		
Autos:	0	feet
Med Trucks:	2.3	feet
Hvy Trucks:	8	feet
Pad Elevation:	0.0	feet
Observer Heights Above Pad Elevation		
Exterior:	5	feet
First Floor:	5.5	feet
Second Floor:	14	feet

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation Exterior	1st Flr	2nd Flr
Autos:	67.36	2.11	-2.19	-1.20	0.00	-7.43	-6.48	0
Med Trucks:	76.31	-9.78	-2.19	-1.20	0.00	-7.15	-6.08	0
Hvy Trucks:	81.16	-14.67	-2.19	-1.20	0.00	-5.5	-4.9	0

UNMITIGATED NOISE LEVELS (with topographical and existing barrier attenuation)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	63.2	62.4	58.3	65.8	66.3
Med Trucks:	63.1	47.8	46.4	46.1	52.8	53.0
Hvy Trucks:	63.1	42.6	38.4	42.4	48.8	48.9
Traffic Noise:	**69.1**	**63.4**	**62.5**	**58.6**	**66.1**	**66.6**

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.6	55.9	55.0	50.9	58.5	59.0
Med Trucks:	56.0	40.7	39.3	39.0	45.6	45.9
Hvy Trucks:	57.6	37.1	32.9	36.9	43.3	43.4
Traffic Noise:	**62.3**	**56.1**	**55.2**	**51.4**	**58.8**	**59.3**

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	56.7	55.8	51.7	59.2	59.7
Med Trucks:	56.9	41.6	40.2	39.9	46.5	46.8
Hvy Trucks:	58.0	37.5	33.3	37.4	43.7	43.8
Traffic Noise:	**63.0**	**56.9**	**56.0**	**52.2**	**59.6**	**60.1**

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.8	63.0	62.2	58.1	65.6	66.1
Med Trucks:	62.9	47.6	46.2	45.8	52.5	52.8
Hvy Trucks:	62.8	42.3	38.1	42.2	48.5	48.6
Traffic Noise:	**68.8**	**63.2**	**62.3**	**58.5**	**65.9**	**66.4**

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

Road Name: Lakeshore Drive West
Building: 2

Project Name: Lakeshore Dr
Job Number: 22013

NOISE MODEL INPUTS

Highway Data

Average Daily Traffic:	23,930 vehicles
Peak Hour Volume:	2,393 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	78 feet

Vehicle Mix

	Day	Evening	Night	Daily
Autos:	63.8%	13.1%	15.3%	92.1%
Medium Trucks:	3.5%	0.6%	1.8%	6.0%
Heavy Trucks:	1.1%	0.1%	0.8%	1.9%

Site Data

Barrier Height:	**6 feet**
Barrier Type(Wall/Berm):	Wall
Site Conditions(Hard/Soft):	Soft
Centerline (C.L.) Dist. to Barrier:	69 feet
C.L. Dist. To Observer (Backyard):	79 feet
Barrier Dist. To Observer (Backyard):	10 feet
C.L. Dist. To Observer (Structure):	80.5 feet
Barrier Dist. To Observer (Structure):	11.5 feet
Road Grade:	0.00 %
Left View:	-90 degrees
Right View:	90 degrees

Elevations

Barrier Base Elevation:	0.0 feet
Road Elevation:	0.0 feet
Noise Source Elevation above Road	
Autos:	0 feet
Med Trucks:	2.3 feet
Hvy Trucks:	8 feet
Pad Elevation:	0.0 feet
Observer Heights Above Pad Elevation	
Exterior:	5 feet
First Floor:	5.5 feet
Second Floor:	14 feet

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation Exterior	1st Flr	2nd Flr
Autos:	67.36	2.11	-2.19	-1.20	0.00	-7.43	-6.48	0
Med Trucks:	76.31	-9.78	-2.19	-1.20	0.00	-7.15	-6.08	0
Hvy Trucks:	81.16	-14.67	-2.19	-1.20	0.00	-5.5	-4.9	0

UNMITIGATED NOISE LEVELS (with topographical and existing barrier attenuation)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	63.2	62.4	58.3	65.8	66.3
Med Trucks:	63.1	47.8	46.4	46.1	52.8	53.0
Hvy Trucks:	63.1	42.6	38.4	42.4	48.8	48.9
Traffic Noise:	**69.1**	**63.4**	**62.5**	**58.6**	**66.1**	**66.6**

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.6	55.9	55.0	50.9	58.5	59.0
Med Trucks:	56.0	40.7	39.3	39.0	45.6	45.9
Hvy Trucks:	57.6	37.1	32.9	36.9	43.3	43.4
Traffic Noise:	**62.3**	**56.1**	**55.2**	**51.4**	**58.8**	**59.3**

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	56.7	55.8	51.7	59.2	59.7
Med Trucks:	56.9	41.6	40.2	39.9	46.5	46.8
Hvy Trucks:	58.0	37.5	33.3	37.4	43.7	43.8
Traffic Noise:	**63.0**	**56.9**	**56.0**	**52.2**	**59.6**	**60.1**

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.8	63.0	62.2	58.1	65.6	66.1
Med Trucks:	62.9	47.6	46.2	45.8	52.5	52.8
Hvy Trucks:	62.8	42.3	38.1	42.2	48.5	48.6
Traffic Noise:	**68.8**	**63.2**	**62.3**	**58.5**	**65.9**	**66.4**

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

Road Name: Lakeshore Drive East
Building: 43

Project Name: Lakeshore Dr
Job Number: 22013

NOISE MODEL INPUTS

Highway Data

Average Daily Traffic:	24,590 vehicles
Peak Hour Volume:	2,459 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	78 feet

Vehicle Mix

	Day	Evening	Night	Daily
Autos:	63.8%	13.1%	15.3%	92.1%
Medium Trucks:	3.5%	0.6%	1.8%	6.0%
Heavy Trucks:	1.1%	0.1%	0.8%	1.9%

Site Data

Barrier Height:	**6 feet**
Barrier Type(Wall/Berm):	Wall
Site Conditions(Hard/Soft):	Soft
Centerline (C.L.) Dist. to Barrier:	69 feet
C.L. Dist. To Observer (Backyard):	79 feet
Barrier Dist. To Observer (Backyard):	10 feet
C.L. Dist. To Observer (Structure):	81 feet
Barrier Dist. To Observer (Structure):	12 feet
Road Grade:	0.00 %
Left View:	-90 degrees
Right View:	90 degrees

Elevations

Barrier Base Elevation:	0.0 feet
Road Elevation:	0.0 feet
Noise Source Elevation above Road	
Autos:	0 feet
Med Trucks:	2.3 feet
Hvy Trucks:	8 feet
Pad Elevation:	0.0 feet
Observer Heights Above Pad Elevation	
Exterior:	5 feet
First Floor:	5.5 feet
Second Floor:	14 feet

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation Exterior	1st Flr	2nd Flr
Autos:	67.36	2.22	-2.19	-1.20	0.00	-7.43	-6.48	0
Med Trucks:	76.31	-9.66	-2.19	-1.20	0.00	-7.15	-6.08	0
Hvy Trucks:	81.16	-14.55	-2.19	-1.20	0.00	-5.5	-4.9	0

UNMITIGATED NOISE LEVELS (with topographical and existing barrier attenuation)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.1	63.3	62.5	58.4	65.9	66.4
Med Trucks:	63.3	48.0	46.6	46.2	52.9	53.2
Hvy Trucks:	63.2	42.7	38.5	42.6	48.9	49.0
Traffic Noise:	**69.2**	**63.5**	**62.6**	**58.8**	**66.2**	**66.7**

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.8	56.0	55.2	51.1	58.6	59.1
Med Trucks:	56.1	40.8	39.4	39.1	45.7	46.0
Hvy Trucks:	57.7	37.2	33.0	37.1	43.4	43.5
Traffic Noise:	**62.4**	**56.2**	**55.3**	**51.5**	**58.9**	**59.4**

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.5	56.8	55.9	51.8	59.3	59.8
Med Trucks:	57.0	41.7	40.3	39.9	46.6	46.9
Hvy Trucks:	58.1	37.6	33.4	37.4	43.8	43.9
Traffic Noise:	**63.1**	**56.9**	**56.0**	**52.2**	**59.6**	**60.1**

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.9	63.1	62.3	58.2	65.7	66.2
Med Trucks:	62.9	47.6	46.2	45.9	52.6	52.8
Hvy Trucks:	62.9	42.3	38.2	42.2	48.6	48.7
Traffic Noise:	**68.9**	**63.3**	**62.4**	**58.5**	**66.0**	**66.4**

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

Road Name: Lakeshore Drive East
Lot Number: 44

Project Name: Lakeshore Dr
Job Number: 22013

NOISE MODEL INPUTS

Highway Data

Average Daily Traffic:	24,590	vehicles
Peak Hour Volume:	2,459	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	78	feet

Vehicle Mix

	Day	Evening	Night	Daily
Autos:	63.8%	13.1%	15.3%	92.1%
Medium Trucks:	3.5%	0.6%	1.8%	6.0%
Heavy Trucks:	1.1%	0.1%	0.8%	1.9%

Site Data

Barrier Height:	**6**	**feet**
Barrier Type(Wall/Berm):	Wall	
Site Conditions(Hard/Soft):	Soft	
Centerline (C.L.) Dist. to Barrier:	69	feet
C.L. Dist. To Observer (Backyard):	79	feet
Barrier Dist. To Observer (Backyard):	10	feet
C.L. Dist. To Observer (Structure):	97	feet
Barrier Dist. To Observer (Structure):	28	feet
Road Grade:	0.00	%
Left View:	-90	degrees
Right View:	90	degrees

Elevations

Barrier Base Elevation:	0.0	feet
Road Elevation:	0.0	feet
Noise Source Elevation above Road		
Autos:	0	feet
Med Trucks:	2.3	feet
Hvy Trucks:	8	feet
Pad Elevation:	0.0	feet
Observer Heights Above Pad Elevation		
Exterior:	5	feet
First Floor:	5.5	feet
Second Floor:	14	feet

FHWA NOISE MODEL CALCULATIONS

	REMEL	Traffic Flow	Distance	Finite Road	Grade	Barrier Attenuation Exterior	1st Flr	2nd Flr
Autos:	67.36	2.22	-2.19	-1.20	0.00	-7.43	-6.87	-0.3
Med Trucks:	76.31	-9.66	-2.19	-1.20	0.00	-7.15	-6.16	-0.151
Hvy Trucks:	81.16	-14.55	-2.19	-1.20	0.00	-5.5	-4.9	0

UNMITIGATED NOISE LEVELS (with topographical and existing barrier attenuation)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.1	63.3	62.5	58.4	65.9	66.4
Med Trucks:	63.3	48.0	46.6	46.2	52.9	53.2
Hvy Trucks:	63.2	42.7	38.5	42.6	48.9	49.0
Traffic Noise:	**69.2**	**63.5**	**62.6**	**58.8**	**66.2**	**66.7**

MITIGATED NOISE LEVELS (Backyard)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.8	56.0	55.2	51.1	58.6	59.1
Med Trucks:	56.1	40.8	39.4	39.1	45.7	46.0
Hvy Trucks:	57.7	37.2	33.0	37.1	43.4	43.5
Traffic Noise:	**62.4**	**56.2**	**55.3**	**51.5**	**58.9**	**59.4**

MITIGATED NOISE LEVELS (First Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.7	54.9	54.0	50.0	57.5	58.0
Med Trucks:	55.4	40.1	38.7	38.4	45.1	45.3
Hvy Trucks:	56.7	36.1	31.9	36.0	42.3	42.4
Traffic Noise:	**61.4**	**55.1**	**54.2**	**50.4**	**57.8**	**58.3**

MITIGATED NOISE LEVELS (Second Floor)

	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	61.4	60.5	56.5	64.0	64.5
Med Trucks:	61.4	46.1	44.7	44.4	51.0	51.3
Hvy Trucks:	61.5	40.9	36.8	40.8	47.2	47.3
Traffic Noise:	**67.3**	**61.6**	**60.7**	**56.8**	**64.3**	**64.7**