

NOISE IMPACT ANALYSIS

1501 DEL NORTE STREET RESIDENTIAL PROJECT

CITY OF WEST COVINA

Lead Agency:

City of West Covina
1444 West Garvey Avenue South
West Covina, CA 91790

Prepared by:

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

Project No. 24042

October 1, 2025

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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 West Covina
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
OSB	oriented strand board
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 potential noise impacts associated with the proposed 1501 Del Norte Street 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 and vibration impacts from the proposed project; and
- An analysis of long-term operations-related noise and vibration impacts from the proposed project.

1.2 Site Location and Study Area

The project site is located at 1501 Del Norte Street in the northwestern portion of the City of West Covina (City). The 13.56-acre project site was previously utilized for the Del Norte Intermediate School Site, which closed in 1989 and was then utilized for the East San Gabriel Valley Regional Occupational Program and Technical Center. This facility has since relocated and the existing structures on the project site are currently vacant. The project site is bounded by Del Norte Park to the north and east (north portion), single-family homes and Sunset Avenue to the east (south portion), Del Norte Street and single-family homes to the south, and Nora Avenue and single-family homes to the west side of the project site. The project study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are the single-family homes located as near as eight (8) feet south of the southeastern portion of the project site and mixed-use office professional (zoned OPMU) structures as near as four (4) feet north of the southeastern portion of the project site. There are also single-family homes located on the west side of Nora Avenue, which are as near as 90 feet west of the project site. In addition, Del Norte Park is adjacent to the north and east sides of the project site, where the nearest picnic table area (passive recreation area) is located as near as 150 feet north of the project site. The nearest school is Monte Vista Elementary School that is located as near as 1,200 feet northwest of the project site.

1.3 Proposed Project Description

The proposed project would consist of demolition of the existing school structures and parking areas and construction of a residential community with 282 homes that consist of 34 single-family detached homes, 138 3-story townhomes, and 110 4-story stacked flats. The proposed residential community would include a community space area with a pool, BBQ area and shade structures near the center of the development,

an onsite road system and approximately 120,891 square feet of paseos and common areas that would be landscaped. The proposed site plan is shown in Figure 2 and the proposed wall plan is shown in Figure 3.

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 West Covina Noise Regulations

The following lists the noise and vibration regulations from the *Code of Ordinances Supplement 93 Municipal Code*, February 27, 2024..

- Section 15-85 – Operational Noise Limits; and
- Section 15-95(a) – Construction Noise 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 Mitigation Measures 1 and 2 would reduce this impact to less than significant levels.

Generation of excessive groundborne vibration or groundborne noise levels?

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

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less than significant impact.

1.5 Mitigation Measures for the Proposed Project

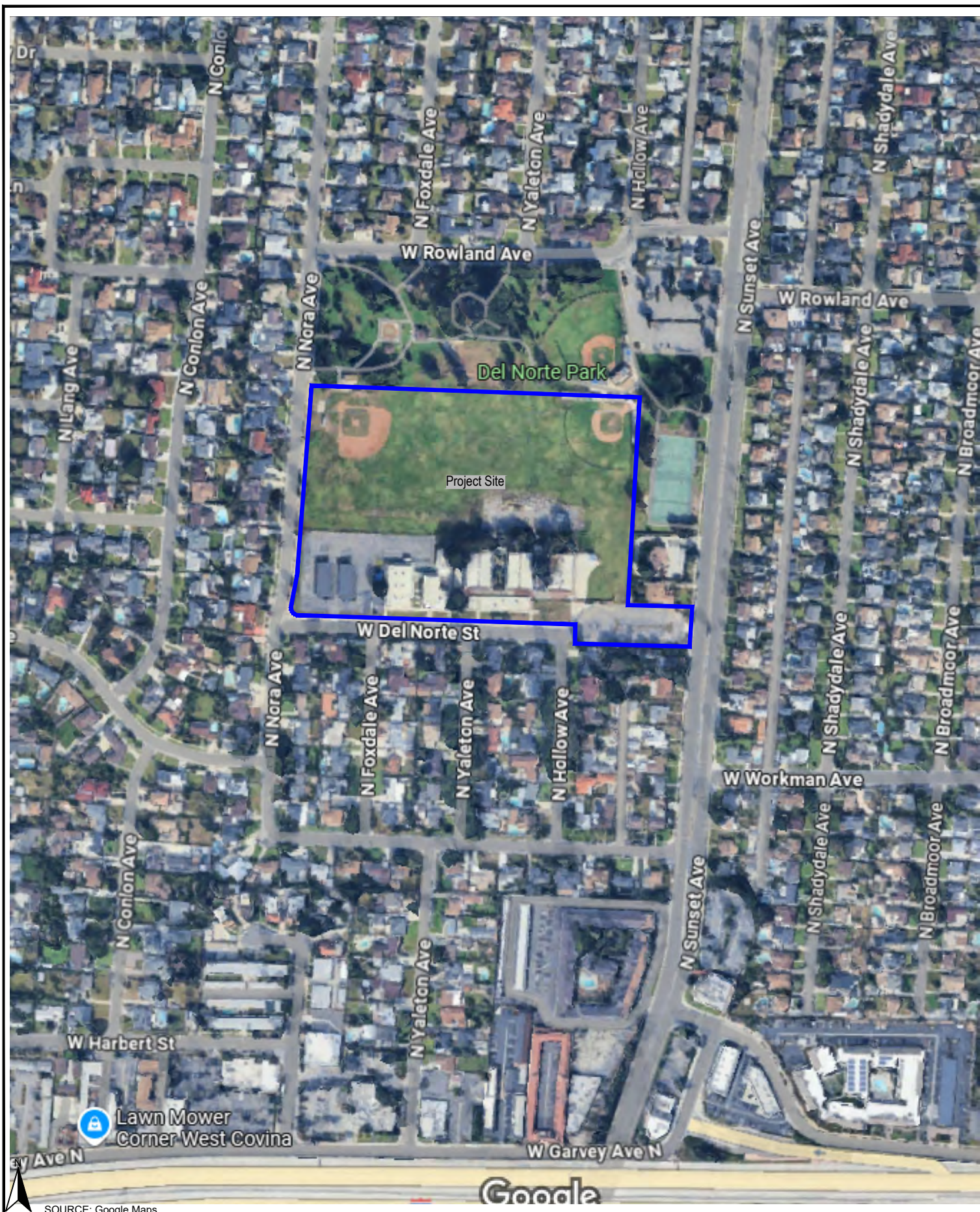
This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above and through implementation of the following mitigation all noise and vibration impacts would be reduced to less than significant levels.

Mitigation Measure 1:

The project applicant shall require the installation of a minimum 12-foot high temporary noise barrier on the portion of the east side of the project site that is adjacent to the homes as well as the entire south side of the project site. The project applicant shall also require the installation of minimum 8-foot high temporary noise barriers around all stationary equipment and concrete saws that are operated within 30 feet of the homes located on the east and south sides of the project site. The temporary noise barriers shall be constructed with either minimum 5/8" thick plywood or oriented strand board (OSB) or sound blankets that have a minimum Sound transmission class (STC) rating of 15 STC.

Mitigation Measure 2:

The project applicant shall require that all construction contractors restrict the operation of any large bulldozers that is powered by a greater than 150 horsepower engine from operating within 20 feet of any off-site structure. The grading contractor shall use a small bulldozer (i.e., D1, D2, or D3 dozers) or other type of equipment that is less than 150 horsepower to perform all demolition and grading activities that are located within 20 feet of any off-site structure.



SOURCE: Google Maps



SOURCE: Meritage Homes.

Figure 2
Proposed Site Plan

LEGEND

- Entry Signage Pilaster - 8'-0" ht.
- Perimeter Wall - 6'-0" ht.
- Perimeter Low Wall (3'ht.) with Tubular Steel Fence (3'ht.) - Total 6'-0"ht.
- Single Family / Townhome Side Yard Fence - 6'-0"ht.
- Townhome Private Patio Fence - 3'-6" ht.
- Pool Enclosure Wall - 6'-0"ht.
- Pool Enclosure Fence - 6'-0"ht.
- Existing Wall to Remain (+/- 6'-0"ht.) (Paint color to match proposed wall.)
- Single Family / Townhome Side Yard Gate
- Townhome Private Patio Gate
- Pool Enclosure Gate
- Park Connection with Overhead Portal

Note: Graffiti-resistant coatings shall be used on all walls, fences, sign structures, glass panels or similar structures to assist in deterring graffiti.



SOURCE: Meritage Homes.



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 West Covina relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

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

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

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in 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 West Covina. Noise regulations are addressed by 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 a 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.

The FTA also provides guidance on construction noise and recommends developing construction noise criteria on a project-specific basis that utilizes local noise ordinances if possible. However, local noise ordinances, including the City of San Dimas Municipal Code, only limit the time of day when construction activities may occur and for the times when construction activities are allowed, no construction noise level limits are provided. The FTA construction noise criteria has been utilized in this analysis to determine if the project would create a significant substantial temporary noise increase to the nearby sensitive receptors, which is a CEQA requirement. 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 for a general construction noise assessment are provided below in Table B.

Table B – FTA Construction Noise Criteria

Land Use	Day (dBA Leq(8-hour))	Night (dBA Leq(8-hour))	30-day Average (dBA Ldn)
Residential	80	70	75
Commercial	85	85	80*
Industrial	90	90	85*

Notes:

* 24-hour Leq not Ldn.

Source: Federal Transit Administration, 2018.

The FTA also provides guidance on analyzing vibration impacts that details how vibration should be assessed on the anticipated frequency of events, where frequent events consist of more than 70 events per day, occasional events consist of 30 to 70 events per day, and infrequent events consist of fewer than 30 events per day. The FTA standards also vary based on the receiving land use type, with institutions that have vibration-sensitive equipment the most sensitive and residential buildings where people normally sleep the second most sensitive land use. Places where people normally stand, such as parks are not consider vibration sensitive land uses. The FTA general assessment vibration impact criteria for assessing human annoyance for frequent events at buildings where people normally sleep is 72 VdB, which is based on the daily average vibration level.

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. The City of West Covina Land Use/Noise Compatibility Matrix is shown below in Figure 4.

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

Table 6.4. City of West Covina Land Use/Noise Compatibility Matrix

Land Use Category	Community Noise Exposure Ldn or CNEL, dBA						
	55	60	65	70	75	80	85
Residential - Low Density Single Family, Duplex, Mobile Homes							
Residential - Multi-Family							
Transient Lodging - Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheatres							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial And Professional							
Industrial, Manufacturing, Utilities, Agriculture							

- 

Normally Acceptable. Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- 

Conditionally Acceptable. New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
- 

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

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

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 provided for both transient (mobile equipment) and continuous (pile driving) sources of vibration. The Guidance Manual provides thresholds for building damage, where continuous or frequent vibration sources may start to create damage to older residential buildings at 0.3 inch per second PPV.

4.3 Local Regulations

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

City of West Covina General Plan

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

Policy P6.23

Ensure that new development is not exposed to excessive noise.

Actions

A 6.23a Require new developments to reduce exterior noise levels for any usable outdoor area to the “normally acceptable” range in the City’s land use/noise compatibility matrix shown in Table 6.4 (see Figure 4, above) of the Noise Element.

A 6.23c Require any residential component of all new buildings to comply with the requirements of the residential noise insulation standards of the most recent edition of the California Building code.

Policy P6.24

Ensure that new development does not expose surrounding land uses to excessive noise.

Actions

A 6.24 Through the environmental review process, require applicants for new development proposals to analyze potential noise impacts on nearby noise-sensitive receivers before project approval. As feasible, require appropriate noise mitigation to address any identified significant noise impacts.

Policy P6.25

Minimize noise conflicts between local noise generators and sensitive receivers.

Actions

A 6.25a Continue to enforce the City’s existing Noise Ordinance.

City of West Covina Municipal Code

The City of West Covina Municipal Code establishes the following applicable standards related to noise.

Section 15-85 Loud, Unnecessary Noises Prohibited Generally

Notwithstanding any other provision of this article, it shall be unlawful for any person within any residential zone of the city to willfully make or continue or cause to be made or continued, any loud, unnecessary or unusual noise which unreasonably disturbs the peace and quiet of any residential neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area. If the noise which is being created is plainly audible at a distance of fifty (50) feet from the property line of any property (or if a condominium or apartment house, within any adjoining unit or apartment), building, structure or vehicle in which it is located, it shall be presumed that the noise being created is in violation of the provisions of this section.

Section 15-95 Construction and building projects

- (a) *Regulation.* Between the hours of 8:00 p.m. of one day and 7:00 a.m. of the next day, it shall be unlawful for any person within a residential zone, or within a radius of five hundred (500) feet therefrom, to operate equipment or perform any outside construction or repair work on

buildings, structures, or projects or to operate any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist, or other construction type device in such manner as to create any noise which causes the noise level at the property line to exceed the ambient noise level by more than five (5) decibels unless a permit therefor has been duly obtained in accordance with paragraph (b) of this section. No permit shall be required to perform emergency work as defined in section 15-83 of this article.

- (b) *Permit procedure.* A permit may be issued authorizing noises prohibited by this section whenever it is found that the public interest will be served thereby. Applications for permits shall be in writing, shall be accompanied by an application fee in the amount of five dollars (\$5.00), and shall set forth in detail facts showing that the public interest will be served by the issuance of such permit. Applications shall be made to the building director; provided, however, that, with respect to work upon or involving the use of a public street, alley, building, or other public place under the jurisdiction of the engineering department, applications shall be made to the city engineer. Anyone dissatisfied with the denial of a permit may appeal to the council.
- (c) *Unloading and Loading.* Between the hours of 8:00 p.m. of one day and 6:00 a.m. of the next day, it shall be unlawful for any person within the radius of five hundred (500) feet of generally occupied residences to unload, load or otherwise perform duties preparatory to the commencement of construction or repair work on buildings and structures. Generally occupied residences shall include, but not limited to, areas which there is a reasonable probability of occupancy in the area.

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 Sunset Avenue that is adjacent to the east side of the project site and from Interstate 10 that is located as near as 1,400 feet south of the project site. Noise is also created from activities at Del Norte Park that is adjacent to the north side of the project site. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

5.1 Noise Measurement Equipment

The noise measurements were taken using a Larson-Davis Model 831 Type 1 precision sound level meter programmed in “slow” mode to record noise levels in “A” weighted form as well as the frequency spectrum of the noise broken down into 1/3 octaves. The sound level meter and microphone were mounted on a tripod five feet above the ground and were equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200. The accuracy of the calibrator is maintained through a program established through the manufacturer and is traceable to the National Bureau of Standards. The noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (ANSI S1.4-2014 standard).

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 C 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 on the south side of the project site that captured primarily traffic noise were taken on a weekday and were recorded between 12:28 p.m. and 12:53 p.m. on Wednesday, May 29, 2024. During the noise measurements, the sky was hazy, the temperature was 72 degrees Fahrenheit, the humidity was 58 percent, barometric pressure was 29.54 inches of mercury, and the wind was blowing at an average rate of five miles per hour.

The noise measurements taken north of the project site at Del Norte Park that captured noise from activities at the Park were taken on a Saturday and were recorded between 1:04 p.m. and 1:23 p.m. on Saturday, November 16, 2024. During the noise measurements, the sky was clear (no clouds), the temperature was 64 degrees Fahrenheit, the humidity was 45 percent, barometric pressure was 29.43 inches of mercury, and the wind was blowing at an average rate of four miles per hour.

5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table C and the noise monitoring data printouts are included in Appendix B.

Table C – Existing (Ambient) Noise Measurement Results

Site No.	Description	Primary Noise Source	Start Time of Measurement	Measured Noise Level	
				dBA Leq	dBA Lmax
Noise Measurements taken on Wednesday, May 29, 2024					
1	Located near the southwest corner of the project site, approximately 25 feet north of Del Norte Street centerline and 60 feet east of Nora Avenue centerline.	Vehicles on Nora Avenue and Del Norte Street	12:28 p.m.	55.0	70.1
2	Located near lower northeast corner of the project site, approximately 65 feet west of Sunset Avenue centerline.	Vehicles on Sunset Avenue	12:43 p.m.	60.3	68.3
Noise Measurements taken on Saturday, November 16, 2024.					
3	Located on the north property line, approximately 50 feet south of the Little League Field	People in Stands and on Little League Field	1:04 p.m.	55.0	66.1
4	Located a couple feet north of the north property line in the small dog portion of the Central Bark Dog Park	Dogs in the Dog Park	1:23 p.m.	62.4	78.7

Notes: Noise measurements taken with a Larson-Davis Model 831 Type 1 precision sound level meter.

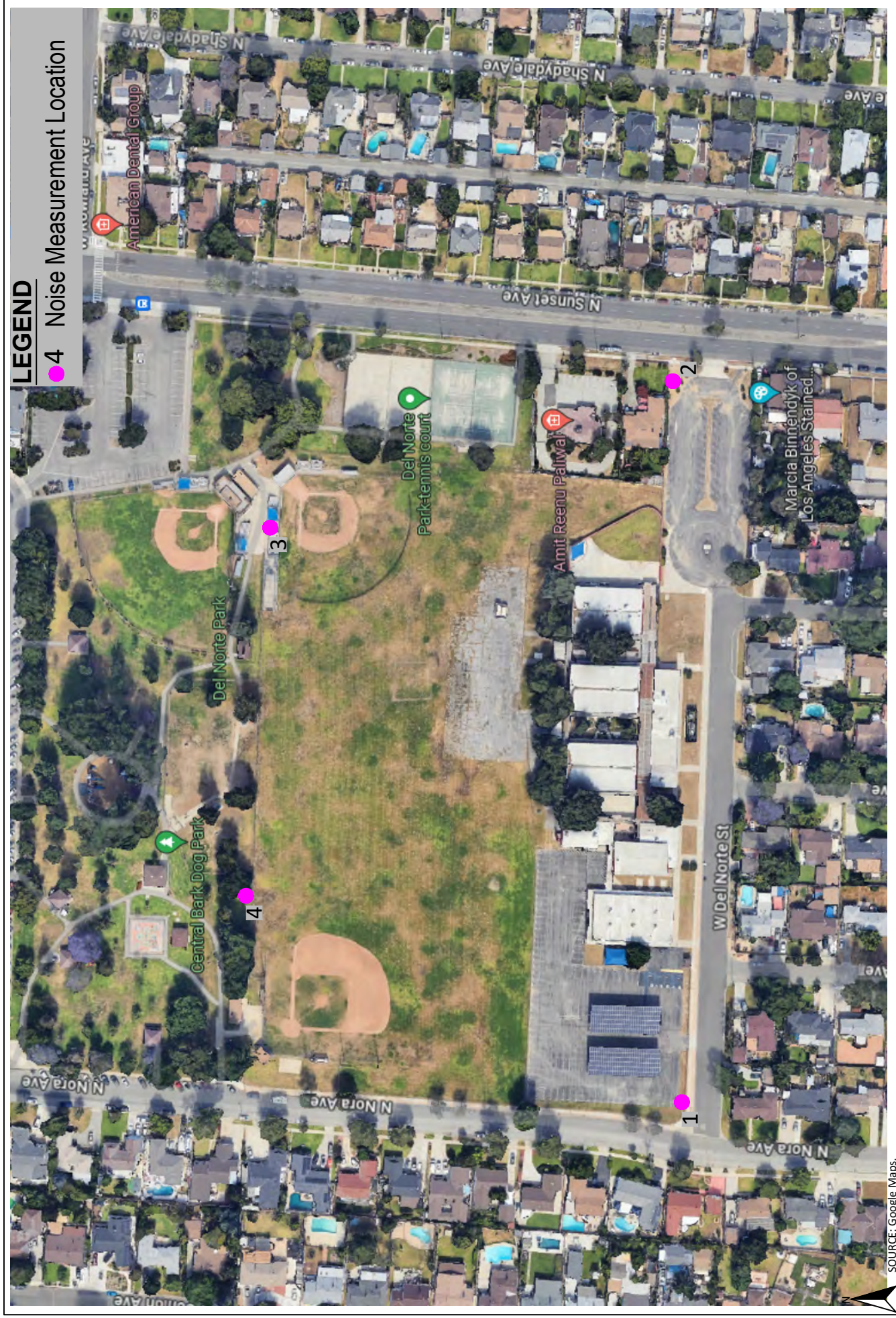
5.3 Project Site Noise Compatibility

General Plan Policy P6.23 Action A 6.23a requires new residential development to reduce exterior noise levels for any usable outdoor area to the “normally acceptable” range in the City’s land use/noise compatibility matrix (see Figure 4, above). Figure 4, above shows that the “normally acceptable” range for new residential development is 60 dBA CNEL or below.

As shown in Table C, the noise levels in the proximity of the project site range between 55.0 and 62.4 dBA Leq. The two locations, where the measured noise level captured a noise level in excess of 60 dBA were located at the eastern edge of the project site, adjacent to Sunset Avenue and on the north side of the project site, adjacent to the Dog Park. As shown above in Figure 3 – Wall Plan, the proposed project would construct a 6-foot high wall along the eastern edge of the project site and a 6-foot high fence on the portions of the northern edge of the project site that are adjacent to private outdoor areas.

Caltrans research has found that sound walls provide 5 dB of noise shielding when the wall reaches the height of line of sight between source and receiver (approximately 5 feet high) and then an additional 0.9 dBA of noise shielding for each foot above the line of sight¹. As such, the proposed 6-foot high walls would provide approximately 5.9 dBA of noise reduction, which would reduce the worst-case measured noise level of 62.4 dBA on the project site to 56.5 dBA, which is within the City’s “normally acceptable” range for new residential development. Therefore, with construction of the walls shown above Figure 3, the proposed project would be compliant with General Plan Policy P6.23 Action A 6.23a.

¹ Obtained from: <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf>



SOURCE: Google Maps.

Figure 5
Field Noise Measurement Locations

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 D below provides a list of the construction equipment anticipated to be used for each phase of construction that was obtained from the *1501 Del Norte Street Residential Air Quality Analysis* (Air Quality Analysis), prepared by Urban Crossroads, May, 2025.

Table D – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor ¹ (percent)	Spec 721.560 Lmax at 50 feet ² (dBA, slow ³)	Actual Measured Lmax at 50 feet ⁴ (dBA, slow ³)
Demolition				
Concrete/Industrial Saw	1	20	90	90
Excavators	2	40	85	81
Rubber Tired Dozers	1	40	85	82
Site Preparation				
Tractor	1	40	84	N/A
Grading				
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Scrapers	2	40	85	84
Tractor	1	40	84	N/A
Building Construction				
Forklift (Gradall)	1	40	85	83
Generator	1	50	82	81
Front End Loader	1	40	80	79
Tractor	1	40	84	N/A
Paving				
Paver	1	50	85	77
Paving Equipment	1	50	85	77
Rollers	2	20	85	80
Architectural Coating				
Air Compressor	2	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.

Table D 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 D and through use of the RCNM. For each phase of construction, the nearest piece of equipment was placed at the shortest distance of the proposed activity to the nearest home to the west and each subsequent piece of equipment was placed an additional 50 feet away, since it is unlikely that two pieces of equipment would operate closer than 50 feet apart. The RCNM printouts are provided in Appendix C for the unmitigated conditions and Appendix D for the mitigated conditions.

6.2 Operations-Related Noise

Operation of the proposed project would generate additional vehicle trips on the nearby roads as well as create noise onsite, which have been modeled separately and are described below.

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) as detailed in the *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, prepared by Caltrans, September 2013. 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 E. 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 E – FHWA Model Roadway Parameters

Roadway	Segment	General Plan Classification	Vehicle Speed (MPH)	Distance to Nearest Receptor ¹ (feet)
Nora Avenue	North of Driveway 1	Local	25	55
Nora Avenue	North of Del Norte Street	Local	25	55
Nora Avenue	South of Del Norte Street	Local	25	55
Yaleton Avenue	South of Del Norte Street	Local	25	50
Sunset Avenue	North of Workman Avenue	Commercial Thoroughfare	40	60
Del Norte Street	West of Yaleton	Local	25	35
Del Norte Street	East of Yaleton	Local	25	35

Notes:

¹ Distance measured from nearest offsite residential structure to centerline of roadway.

Source: City of West Covina, 2016.

According to the Air Quality Analysis (Urban Crossroads, 2025) the proposed 34 single-family homes would generate 322 weekday trips and the 248 condos/townhomes would generate 1,132 weekday trips for a total of 1,454 daily vehicle trips generated by the proposed project. The existing traffic volumes were obtained by multiplying by 12 the PM peak hour vehicle counts taken by AIM TD, LLC that are provided in the *1501 Del Norte Street Due Diligence Traffic Assessment* (Traffic Study), prepared by Urban Crossroads, June 24, 2024. The existing with project daily trips were calculated by multiplying project trip distribution for each roadway as shown in the Traffic Study by the project total 1,454 daily trips and then adding that to the existing daily trips for each road segment. The ADT volumes used in this analysis are shown in Table F.

Table F – Average Daily Traffic Volumes

Roadway	Segment	Average Daily Traffic Volumes	
		Existing	Existing + Project
Nora Avenue	North of Driveway 1	1,090	1,635
Nora Avenue	North of Del Norte Street	1,090	1,308
Nora Avenue	South of Del Norte Street	920	1,174
Yaleton Avenue	South of Del Norte Street	160	414
Sunset Avenue	North of Workman Avenue	20,570	21,079
Del Norte Street	West of Yaleton	280	571
Del Norte Street	East of Yaleton	180	798

Source: City of West Covina, 2016; Urban Crossroads, 2025.

The vehicle mixes used in the FHWA-RD-77-108 Model are shown in Table G and are based on typical vehicle mixes observed in Southern California. The vehicle mixes provide the hourly distribution percentages of automobiles, medium trucks, and heavy trucks for input into the FHWA model.

Table G – Roadway Vehicle Mixes

Vehicle Type	Traffic Flow Distributions			Overall
	Day (7 a.m. to 7 p.m.)	Evening (7 p.m. to 10 p.m.)	Night (10 p.m. to 7 a.m.)	
Local				
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%
Commercial Thoroughfare				
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%

Source: Vista Environmental.

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.

Onsite Noise Modeling Methodology

The operation of the proposed project would contain the same noise sources that currently occur in the project vicinity that consists of residential and park uses. Since the proposed community space area that includes a pool, BBQ area and shade structures would be located near the center of the development, any noise created from the community space area stationary sources, such as pool pumps would not be noticeable on the nearby properties. In addition, the project would include paseos and common areas throughout the project site, however no stationary noise producing equipment would be located in these common areas and Assembly Bill 1307 specifies that for the purposes of CEQA, the effects of noise generated by project occupants and their guests on human beings is not a significant effect on the environment for new residential projects in urban areas. Since the proposed project meets the Assembly Bill 1307 requirements, no onsite noise sources that are generated by human beings have been analyzed.

The only onsite noise source not generated by the occupants and guests that has the potential to increase the noise levels at the nearby offsite residential properties would be from air conditioning equipment. The project applicant has stated that the proposed homes will likely use a heat pump made by Carrier Series 38 MURA, which produces noise levels that range between 54 and 62 dBA at one meter (3.28 feet). In order to provide a worst-case analysis, a noise level of 62 dBA at one meter was utilized to analyze the air conditioner noise impacts. The noise level at the nearest homes were calculated through use of standard geometric spreading of noise, which provides an attenuation rate of 6 dB per doubling the distance between source and receptor.

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 H gives approximate vibration levels for particular construction activities. The data in Table H provides a reasonable estimate for a wide range of soil conditions.

Table H – 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 H and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table C.

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 demolition of the existing school structures and parking areas, site preparation and grading of the 13.56-acre project site, building construction of a residential community with 282 homes, paving of the onsite roads and sidewalks, 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 the single-family homes located as near as eight (8) feet south of the southeastern portion of the project site and mixed-use office professional (zoned OPMU) structures as near as four (4) feet north of the southeastern portion of the project site. There are also single-family homes located on the west side of Nora Avenue, which are as near as 90 feet west of the project site. In addition, Del Norte Park is adjacent to the north and east sides of the project site, where the nearest picnic table area (passive recreation area) is located as near as 150 feet north of the project site. In order to account for the acoustical center of the offroad equipment, it has been assumed that the average width of offroad equipment is 12 feet wide, which would result in an additional 6 feet being added to the distances to the nearby sensitive receptors.

Section 15-95(a) of the City's Municipal Code restricts construction activities from occurring between the hours of 8:00 p.m. one day and 7:00 a.m. of the next day. The City construction noise standards do not provide any limits to the noise levels that may be created from construction activities that occur during the allowable hours of construction. As such, in order to determine if the proposed construction activities would create a significant substantial temporary noise increase, the FTA construction noise criteria thresholds detailed above in Section 4.1 have been utilized, which shows that a significant construction

noise impact would occur if construction noise exceeds 80 dBA during the daytime at the nearby homes and park.

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 D that shows the anticipated construction equipment that would be used in each phase of construction. The calculated construction-related noise impacts prior to mitigation are shown below in Table I and the RCNM printouts for the unmitigated conditions are provided in Appendix C.

Table I – Construction Noise Levels at the Nearby Sensitive Receptors Prior to Mitigation

Construction Phase	Construction Noise Level (dBA Leq) at:			
	Homes to the East ¹	Homes to the South ²	Homes to the West ³	Park to the North ⁴
Demolition	97	94	78	74
Site Preparation	94	91	74	70
Grading	95	92	77	74
Building Construction	94	91	76	72
Paving	88	86	71	67
Painting	88	85	70	66
Maximum Construction Noise Level	97	94	78	74
FTA Construction Noise Threshold⁵	80	80	80	80
Exceed Threshold?⁴	Yes	Yes	No	No

Notes:

¹ The nearest homes to the east are located as near as 4 feet from the project site.

² The nearest homes to the south are located as near as 8 feet from the project site.

³ The nearest homes to the west are located as near as 90 feet from the center of the project site

⁴ The park to the noise is based on the picnic table area that is located as near as 150 feet from the project site.

⁵ Obtained from Table B, above.

Source: RCNM, Federal Highway Administration, 2006

Table I shows that the greatest noise impacts would occur during the demolition phase, with noise levels as high as 97 dBA Leq at the homes to the east, 94 dBA Leq at the homes to the south, 78 dBA Leq at the homes to the west, and 74 dBA Leq at the park to the north. Table I shows that the noise levels at the homes to the east and south would exceed the FTA construction noise standard of 80 dBA, while the noise levels at the homes to the west and park to the north would be below the FTA construction noise standard of 80 dBA. This would be considered a significant impact.

Mitigation Measure 1 has been provided that would require the installation of a temporary noise barrier on the portion of the east side that is adjacent to the homes and entire south side as well as providing additional temporary noise barriers around all stationary equipment and concrete saws that are operated within 30 feet of the homes to the east and south and Mitigation Measure 2 has been provided that would restrict the largest equipment, which is typically the loudest from operating within 20 feet from any offsite structure.

According to the Housing and Urban Development's Barrier Performance Module, a 12-foot barrier would result in a noise reduction of approximately 10 dBA, which was entered into the RCNM model for the homes to the east and homes to the south in order to account for Mitigation Measure 1. In addition, the minimum distance was adjusted out to 20 feet for the homes to the east and homes to the south in order

to account for Mitigation Measure 2. The RCNM model was re-run and the calculated mitigated construction-related noise levels are shown in Table J and the RCNM printouts for the mitigated conditions are provided in Appendix D. As shown in Table J, with implementation of Mitigation Measures 1 and 2, construction-related noise impacts would be below the FTA construction noise standard of 80 dBA at all analyzed receptors. Therefore, with implementation of Mitigation Measures 1 and 2, construction noise impacts would be less than significant.

Table J – Mitigated Construction Noise Levels at the Nearby Sensitive Receptors

Construction Phase	Construction Noise Level (dBA Leq) at:			
	Homes to the East ¹	Homes to the South ²	Homes to the West ³	Park to the North ⁴
Demolition	79	79	78	74
Site Preparation	76	76	74	70
Grading	77	77	77	74
Building Construction	76	76	76	72
Paving	71	71	71	67
Painting	71	71	71	67
Maximum Construction Noise Level	79	79	78	74
FTA Construction Noise Threshold⁵	80	80	80	80
Exceed Threshold? ⁴	No	No	No	No

Notes:

¹ The nearest homes to the east are located as near as 4 feet from the project site.

² The nearest homes to the south are located as near as 8 feet from the project site.

³ The nearest homes to the west are located as near as 90 feet from the center of the project site.

⁴ The park to the noise is based on the picnic table area that is located as near as 150 feet from the project site.

⁵ Obtained from Table B, above.

Source: RCNM, Federal Highway Administration, 2006

Operational-Related Noise

Potential noise impacts associated with the operations of the proposed project would be from project-generated vehicular traffic on the nearby roadways and from onsite noise sources to the nearby sensitive receptors. The noise impacts created from project generated vehicular traffic on the nearby roadways and from onsite noise sources to the nearby homes have been analyzed separately below.

Roadway Vehicular Noise Impact to Nearby Sensitive Receptors

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.

The potential offsite traffic noise impacts created by the on-going operations of the proposed project have been analyzed through utilization of the FHWA model and parameters described above in Section 6.2 and the FHWA model noise calculation spreadsheets are provided in Appendix E. The proposed project's potential offsite traffic noise impacts have been calculated through a comparison of the existing year scenario to the existing with project scenario. The results of this comparison are shown in Table K.

Table K – Project-Related Roadway Noise Contributions

Roadway	Segment	dBA CNEL at Nearest Receptor ¹			Increase Threshold ²
		Existing	Existing Plus Project	Project Contribution	
Nora Avenue	North of Driveway 1	48.2	50.0	+1.8	+7 dBA
Nora Avenue	North of Del Norte Street	48.2	49.0	+0.8	+7 dBA
Nora Avenue	South of Del Norte Street	47.5	48.5	+1.0	+7 dBA
Yaleton Avenue	South of Del Norte Street	40.5	44.6	+4.1	+7 dBA
Sunset Avenue	North of Workman Avenue	67.2	67.3	+0.1	+1 dBA
Del Norte Street	West of Yaleton	45.3	48.4	+3.1	+7 dBA
Del Norte Street	East of Yaleton	43.4	49.9	+6.5	+7 dBA

Notes:

¹ Distance to nearest sensitive receptors shown in Table E, does not take into account existing noise barriers such as walls and structures.

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 K shows that the proposed project's permanent noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the roadway noise increase thresholds detailed above. It should be also noted, that the noise levels shown in Table K do not account for non-road noise sources and the greatest project impacts that occur on Del Norte Street are below the measured ambient noise level of 55.0 dBA Leq as shown above in Table C – Existing (Ambient) Noise Measurement Results. For these reasons, the proposed project would not result in a substantial permanent roadway noise increase above ambient noise levels. Roadway noise impacts would be less than significant.

Onsite Noise Impacts to Nearby Sensitive Receptors

As detailed above in Section 6.2, operation of the project may create onsite noise impacts to the nearby residential properties from the operation of air conditioning equipment. Section 15-85 of the Municipal Code restricts the making of noise in any residential neighborhood that is plainly audible at a distance of 50 feet from the property line of any property. In order to provide a quantitative threshold, "plainly audible" has been assumed in this analysis to be a noise level that exceeds ambient noise levels at a distance of 50 feet from the nearby homes and park property lines.

The project applicant has stated that the proposed townhomes will likely use a heat pump made by Carrier Series 38 MURA, which produces noise levels as high as 62 dBA at one meter. The noise level at 50 feet from the nearest residential property lines were calculated through use of standard geometric spreading of noise, which provides an attenuation rate of 6 dB per doubling the distance between source and receptor. Table L shows the calculated noise levels at the nearby sensitive receptors.

Table L – Onsite Operational Noise Levels at the Nearby Sensitive Receptors

Noise Source	Calculated Noise Levels (dBA Leq) at ¹ :			
	Homes to East ²	Homes to South ³	Homes to West ⁴	Park to North ⁵
Air Conditioner Equipment	37	31	31	47
Existing Ambient Noise Levels	60.3	60.3	55.0	55.0
Exceed Ambient Noise Threshold?	No	No	No	No

Notes:

¹ Noise levels calculated based on a reference noise level of 62 dB at one meter and a standard geometric spreading of noise, which results in a 6.0 dB drop in noise when distance is doubled.

² The distance from the nearest air conditioner equipment to the nearest property line for the Homes to the East is 10 feet. As such, noise was calculated at 60 feet.

³ The distance from the nearest air conditioner equipment to the nearest property line for the Homes to the South is 60 feet. As such, noise was calculated at 110 feet.

⁴ The distance from the nearest air conditioner equipment to the nearest property line for the Homes to the West is 60 feet. As such, noise was calculated at 110 feet.

⁵ The distance from the nearest air conditioner equipment to the property line for the Park to the North is 5 feet. As such, noise was calculated at 55 feet.

Table L shows that the proposed project's operational noise from air conditioner units on the project site would create a noise level as high as 47 dBA at the park to the north and as high as 37 dBA at the nearest homes to the east. The operational onsite noise levels would be below the existing ambient noise levels at 50 feet from the nearest property lines. Therefore, operation of the proposed project's onsite noise sources would not create a substantial increase in ambient noise levels that are in excess of applicable noise standards. Onsite noise impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 1:

The project applicant shall require the installation of a minimum 12-foot high temporary noise barrier on the portion of the east side of the project site that is adjacent to the homes as well as the entire south side of the project site. The project applicant shall also require the installation of minimum 8-foot high temporary noise barriers around all stationary equipment and concrete saws that are operated within 30 feet of the homes located on the east and south sides of the project site. The temporary noise barriers shall be constructed with either minimum 5/8" thick plywood or oriented strand board (OSB) or sound blankets that have a minimum Sound transmission class (STC) rating of 15 STC.

Mitigation Measure 2:

The project applicant shall require that all construction contractors restrict the operation of any large bulldozers that is powered by a greater than 150 horsepower engine from operating within 20 feet of any off-site structure. The grading contractor shall use a small bulldozer (i.e., D1, D2, or D3 dozers) or other type of equipment that is less than 150 horsepower to perform all demolition and grading activities that are located within 20 feet of any off-site structure.

Level of Significance after Mitigation

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

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

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include demolition of the existing school structures and parking areas, site preparation and grading of the 13.56-acre project site, building construction of a residential community with 282 homes, paving of the onsite roads and sidewalks, 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 primary sources of vibration during construction would be from the operation of a bulldozer during demolition and grading activities and from a vibratory roller during paving activities. From Table H above a large bulldozer would create a vibration level of 0.089 inch-per-second PPV or 87 VdB at 25 feet and a vibratory roller would create a vibration level of 0.21 inch-per-second PPV or 94 VdB at 25 feet. Vibration has the potential to create annoyance to the nearby residents as well as damage to the nearby structures, which have been analyzed separately below.

Human Annoyance Vibration Impacts

The FTA guidance that is detailed above in Section 4.1, defines the threshold for human annoyance in residential buildings where people normally sleep is 72 VdB. Since the human annoyance threshold is based on the daily average, the analyzed distance utilized is based on the nearest offsite home to the center of the project site, which are the homes to the east that are located as near as 485 feet from the center of the project (see Table I, above).

As detailed above, a vibratory roller would create the highest level of vibration at 94 VdB at 25 feet. Based on typical vibration propagation rates, the average vibration level at the nearest homes to the east (485 feet from center of project site) would be 56 VdB, which is below the FTA's human annoyance threshold of 72 VdB. Therefore, construction-related human annoyance vibration impacts would be less than significant.

Building Damage Vibration Impacts

Caltrans guidance that is detailed above in Section 4.2, defines the threshold for building damage to older residential structures and other older buildings to 0.3 inch per second PPV, which is based on the peak vibration level. Since the building damage threshold is based on the peak vibration level, the analyzed distance is the shortest distance between where construction equipment would operate and the nearest offsite structure. The nearest offsite structures are the single-family homes located as near as eight (8) feet south of the southeastern portion of the project site and mixed-use office professional (zoned OPMU) structures as near as four (4) feet north of the southeastern portion of the project site.

For the vibratory roller, the laying of asphalt pavement would occur as near as 24 feet from the nearest home located south of the southeastern portion of the project site. Based on typical vibration propagation rates, the vibration level at the nearest offsite home (24 feet away) would be 0.22 inch per second PPV. The vibration level at the nearest offsite home would be below the building damage threshold of 0.3 inch

per second PPV threshold that is detailed above. Therefore, the use of vibratory rollers during paving activities, would create a less than significant building damage vibration impact.

For the large bulldozer, based on typical vibration propagation rates, the vibration level at the nearest offsite mixed-use structure (4 feet away) would be 0.67 inch per second PPV. The vibration level at the nearest offsite mixed-use structure would exceed the building damage threshold of 0.3 inch per second PPV. This would be considered a significant impact.

Mitigation Measure 2 is provided that would require that the applicant to restrict the use of a large dozer within 20 feet of any offsite structure. For all grading activities that occur within 20 feet of any offsite structure, the applicant shall require the use of a small dozer or other type of equipment that is less than 150 horsepower. From Table H above a small bulldozer would create a vibration level of 0.003 inch-per-second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest mixed-use structure (4 feet away) would be 0.023 inch per second PPV, which would be below the building damage threshold of 0.3 inch per second PPV. Therefore, with implementation of Mitigation Measure 2, a less than significant building damage vibration impact is anticipated from construction of the proposed project.

Operations-Related Vibration Impacts

The proposed project would consist of the development of a residential community. The ongoing 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 Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 2, provided above in Section 7.2.

Level of Significance after Mitigation

Less than significant impact.

7.4 Aircraft Noise

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is San Gabriel Valley Airport, located approximately 5.5 miles west of the project site. The project site is located outside of the 60 dBA CNEL noise contours of this Airport. Impacts would be less than significant.

Level of Significance

Less than significant impact.

8.0 REFERENCES

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 West Covina, *West Covina General Plan*, adopted December 2016.

City of West Covina, *Code of Ordinances Supplement 93 Municipal Code*, February 27, 2024.

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

Urban Crossroads, *1501 Del Norte Street Residential Air Quality Analysis*, May, 2025.

Urban Crossroads, *1501 Del Norte Street Due Diligence Traffic Assessment*, June 24, 2024.

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.

APPENDIX A

Field Noise Measurements Photo Index



Noise Measurement Site 1 - looking north



Noise Measurement Site 1 - looking northeast



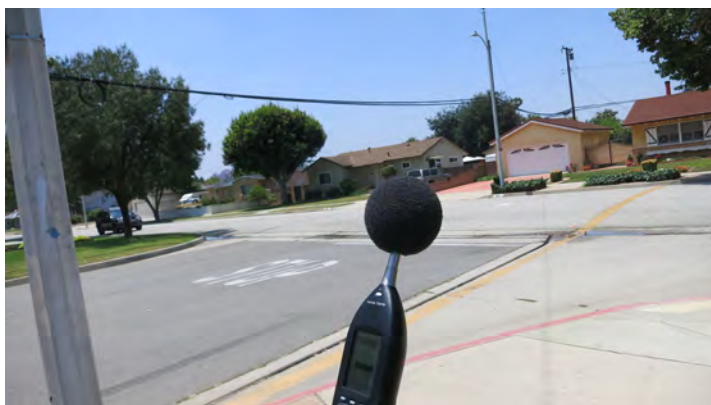
Noise Measurement Site 1 - looking east



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



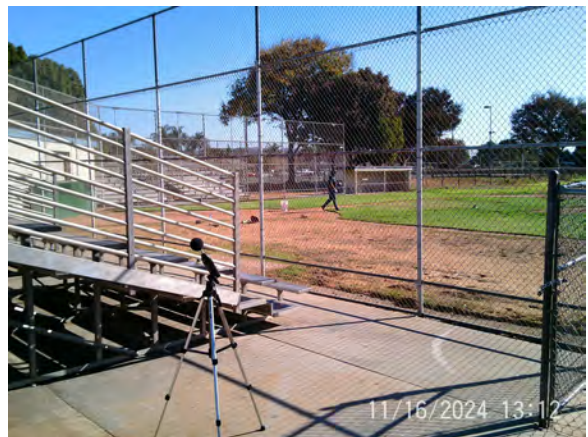
Noise Measurement Site 3 - looking north



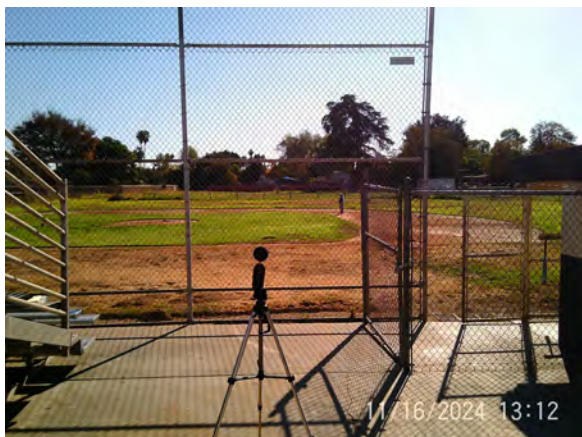
Noise Measurement Site 3 - looking northeast



Noise Measurement Site 3 - looking east



Noise Measurement Site 3 - looking southeast



Noise Measurement Site 3 - looking south



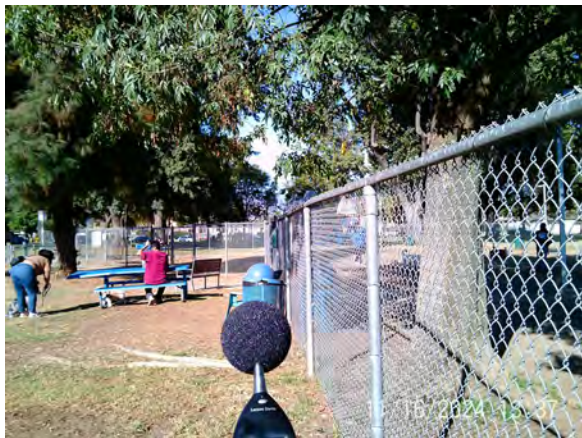
Noise Measurement Site 3 - looking southwest



Noise Measurement Site 3 - looking west



Noise Measurement Site 3 - looking northwest



Noise Measurement Site 4 - looking north



Noise Measurement Site 4 - looking northeast



Noise Measurement Site 4 - looking east



Noise Measurement Site 4 - looking southeast



Noise Measurement Site 4 - looking south



Noise Measurement Site 4 - looking southwest



Noise Measurement Site 4 - looking west



Noise Measurement Site 4 - looking northwest

APPENDIX B

Field Noise Measurements Printouts

Measurement Report

Report Summary

Meter's File Name	831_Data.003	Computer's File Name	SLM_0002509_831_Data_0
Meter	831		
Firmware	2.403		
User	GT		Location
Description	1501 Del Norte St, West Covina		
Note	Located near SW corner of project site, approx 25 ft north of Del Norte St CL and 60 ft east of Nora Ave CL		
Start Time	2024-05-29 12:28:39	Duration	0:10:00.0
End Time	2024-05-29 12:38:39	Run Time	0:10:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

L _{Aeq}	55.0 dB		
L _{AE}	82.8 dB	SEA	--- dB
EA	21.0 µPa²h		
L _{Zpeak}	102.0 dB	2024-05-29 12:28:40	
L _{ASmax}	70.1 dB	2024-05-29 12:29:21	
L _{ASmin}	46.2 dB	2024-05-29 12:28:53	
L _{Aeq}	55.0 dB		
L _{Ceq}	64.0 dB	L _{Ceq} - L _{Aeq}	9.1 dB
L _{AIeq}	57.5 dB	L _{AIeq} - L _{Aeq}	2.5 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	4	0:00:10.5
LAS > 85.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
55.0 dB	55.0 dB	0.0 dB	
LDEN	LDay	LEve	LNight
55.0 dB	55.0 dB	--- dB	--- dB

Any Data

A		C		Z	
Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	55.0 dB	64.0 dB		72.4 dB	
L _{S(max)}	70.1 dB 2024-05-29 12:29:21	75.3 dB 2024-05-29 12:29:21		92.2 dB 2024-05-29 12:28:40	
L _{F(max)}	73.6 dB 2024-05-29 12:29:21	79.2 dB 2024-05-29 12:29:21		97.3 dB 2024-05-29 12:28:40	
L _{I(max)}	76.5 dB 2024-05-29 12:29:21	81.7 dB 2024-05-29 12:29:21		100.1 dB 2024-05-29 12:28:40	
L _{S(min)}	46.2 dB 2024-05-29 12:28:53	57.7 dB 2024-05-29 12:29:53		62.4 dB 2024-05-29 12:34:33	
L _{F(min)}	45.7 dB 2024-05-29 12:28:54	55.7 dB 2024-05-29 12:29:45		59.8 dB 2024-05-29 12:34:17	
L _{I(min)}	46.0 dB 2024-05-29 12:28:53	58.3 dB 2024-05-29 12:34:32		63.8 dB 2024-05-29 12:33:10	
L _{Peak(max)}	91.0 dB 2024-05-29 12:29:21	94.7 dB 2024-05-29 12:29:21		102.0 dB 2024-05-29 12:28:40	

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	61.6 dB
LAS 10.0	58.5 dB
LAS 33.3	51.7 dB
LAS 50.0	50.5 dB
LAS 66.6	49.4 dB
LAS 90.0	47.6 dB

Measurement Report

Report Summary

Meter's File Name	831_Data.004	Computer's File Name	SLM_0002509_831_Data_004.10.ldbin
Meter	831		
Firmware	2.403		
User	GT		Location
Description	1501 Del Norte St, West Covina		
Note	Located near NE corner of project site, approx 65 ft west of Sunset Ave CL		
Start Time	2024-05-29 12:43:09	Duration	0:10:00.0
End Time	2024-05-29 12:53:09	Run Time	0:10:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	60.3 dB		
LAE	88.0 dB	SEA	--- dB
EA	70.7 µPa²h		
LZ _{peak}	99.0 dB	2024-05-29 12:47:25	
LAS _{max}	68.3 dB	2024-05-29 12:47:52	
LAS _{min}	46.8 dB	2024-05-29 12:44:16	
LA _{eq}	60.3 dB		
LC _{eq}	68.7 dB	LC _{eq} - LA _{eq}	8.5 dB
LAI _{eq}	61.4 dB	LAI _{eq} - LA _{eq}	1.2 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	15	0:01:03.6
LAS > 85.0 dB	0	0:00:00.0
LZ _{peak} > 135.0 dB	0	0:00:00.0
LZ _{peak} > 137.0 dB	0	0:00:00.0
LZ _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
60.3 dB	60.3 dB	0.0 dB	
LDEN	LDay	LEve	LNight
60.3 dB	60.3 dB	--- dB	--- dB

Any Data

Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	60.3 dB		68.7 dB		73.4 dB	
L _{S(max)}	68.3 dB	2024-05-29 12:47:52	81.0 dB	2024-05-29 12:43:09	90.5 dB	2024-05-29 12:43:09
L _{F(max)}	70.2 dB	2024-05-29 12:51:52	80.5 dB	2024-05-29 12:43:09	93.8 dB	2024-05-29 12:47:25
L _{I(max)}	72.6 dB	2024-05-29 12:51:52	81.0 dB	2024-05-29 12:43:09	96.8 dB	2024-05-29 12:47:25
L _{S(min)}	46.8 dB	2024-05-29 12:44:16	59.9 dB	2024-05-29 12:43:51	64.2 dB	2024-05-29 12:50:42
L _{F(min)}	46.0 dB	2024-05-29 12:50:42	57.9 dB	2024-05-29 12:44:17	62.2 dB	2024-05-29 12:48:24
L _{I(min)}	46.6 dB	2024-05-29 12:44:25	60.4 dB	2024-05-29 12:44:21	65.0 dB	2024-05-29 12:50:40
L _{Peak(max)}	85.8 dB	2024-05-29 12:51:52	90.1 dB	2024-05-29 12:51:04	99.0 dB	2024-05-29 12:47:25

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	65.2 dB
LAS 10.0	64.2 dB
LAS 33.3	60.9 dB
LAS 50.0	58.8 dB
LAS 66.6	54.9 dB
LAS 90.0	48.8 dB

Measurement Report

Report Summary

Meter's File Name	831_Data.001.s	Computer's File Name	831_0002509-20241116 130449-831_Data.001.ldbin
Meter	831 0002509	Firmware	2.403
User	GT	Location	Approximately 50' south of Del Norte Park Little League Field
Job Description	1501 Del Norte Street Residential Project		
Note	During Little League Game, noise from stands and aircraft overflights		

Measurement

Start Time	2024-11-16 13:04:49	Duration	0:15:00.0		
End Time	2024-11-16 13:19:49	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2024-11-16 13:00:08	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics					
LA _{eq}	55.0 dB				
LAE	84.5 dB	SEA	---	dB	
EA	31.6 µPa²h				
LZ _{peak}	101.9 dB		2024-11-16 13:04:49		
LAS _{max}	66.1 dB		2024-11-16 13:10:10		
LAS _{min}	50.0 dB		2024-11-16 13:19:33		
LA _{eq}	55.0 dB				
LC _{eq}	67.4 dB	LC _{eq} - LA _{eq}	12.4 dB		
LAI _{eq}	58.8 dB	LAI _{eq} - LA _{eq}	3.8 dB		
Exceedances		Count	Duration		
LAS > 65.0 dB		1	0:00:01.2		
LAS > 85.0 dB		0	0:00:00.0		
LZpk > 135.0 dB		0	0:00:00.0		
LZpk > 137.0 dB		0	0:00:00.0		
LZpk > 140.0 dB		0	0:00:00.0		
Community Noise		LDN	LDay	LNight	
		55.0 dB	55.0 dB	---	dB
		LDEN	LDay	LEve	LNight
		55.0 dB	55.0 dB	---	dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	55.0 dB		67.4 dB		72.3 dB	
L _S (max)	66.1 dB	2024-11-16 13:10:10	75.2 dB	2024-11-16 13:14:42	93.8 dB	2024-11-16 13:04:49
L _F (max)	71.6 dB	2024-11-16 13:07:58	76.7 dB	2024-11-16 13:14:42	98.5 dB	2024-11-16 13:04:49
L _I (max)	76.3 dB	2024-11-16 13:07:58	77.6 dB	2024-11-16 13:07:58	100.4 dB	2024-11-16 13:04:49
L _S (min)	50.0 dB	2024-11-16 13:19:33	63.6 dB	2024-11-16 13:19:43	65.3 dB	2024-11-16 13:13:47
L _F (min)	49.1 dB	2024-11-16 13:19:33	62.2 dB	2024-11-16 13:19:41	63.9 dB	2024-11-16 13:19:48
L _I (min)	49.7 dB	2024-11-16 13:19:33	63.9 dB	2024-11-16 13:19:41	65.4 dB	2024-11-16 13:13:47
L _{Peak} (max)	93.6 dB	2024-11-16 13:07:58	94.1 dB	2024-11-16 13:07:58	101.9 dB	2024-11-16 13:04:49

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	58.3 dB
LAS 10.0	57.2 dB
LAS 33.3	55.0 dB
LAS 50.0	54.2 dB
LAS 66.6	53.5 dB
LAS 90.0	52.0 dB

Measurement Report

Report Summary

Meter's File Name	831_Data.002.s	Computer's File Name	831_0002509-20241116 132342-831_Data.002.ldbin
Meter	831 0002509	Firmware	2.403
User	GT	Location	South Side of Dog Park on Little Dog side, approx 3 feet west of Large Dog Side
Job Description	1501 Del Norte Street Residential Project		
Note	Approx 6 small dogs and 9 large dogs in Central Bark Dog Park		

Measurement

Start Time	2024-11-16 13:23:42	Duration	0:15:00.0		
End Time	2024-11-16 13:38:42	Run Time	0:15:00.0	Pause Time	0:00:00.0
Pre-Calibration	2024-11-16 13:00:07	Post-Calibration	None	Calibration Deviation	---

Results

Overall Metrics					
L _{Aeq}	62.4 dB				
L _{AE}	91.9 dB	SEA	---	dB	
EA	173.8 µPa²h				
L _{Zpeak}	102.1 dB		2024-11-16 13:23:42		
L _{Smax}	78.7 dB		2024-11-16 13:38:02		
L _{Smin}	46.3 dB		2024-11-16 13:32:36		
L _{Aeq}	62.4 dB				
L _{Ceq}	65.4 dB	L _{Ceq} - L _{Aeq}	3.0 dB		
L _{AIeq}	70.7 dB	L _{AIeq} - L _{Aeq}	8.3 dB		
Exceedances		Count	Duration		
LAS > 65.0 dB		31	0:02:23.8		
LAS > 85.0 dB		0	0:00:00.0		
LZpk > 135.0 dB		0	0:00:00.0		
LZpk > 137.0 dB		0	0:00:00.0		
LZpk > 140.0 dB		0	0:00:00.0		
Community Noise		LDN	LDay	LNight	
		62.4 dB	62.4 dB	---	dB
		LDEN	LDay	LEve	LNight
		62.4 dB	62.4 dB	---	dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	62.4 dB		65.4 dB		68.9 dB	
L _S (max)	78.7 dB	2024-11-16 13:38:02	78.9 dB	2024-11-16 13:30:40	92.6 dB	2024-11-16 13:23:43
L _F (max)	83.8 dB	2024-11-16 13:38:00	84.1 dB	2024-11-16 13:38:00	97.3 dB	2024-11-16 13:23:42
L _I (max)	86.3 dB	2024-11-16 13:38:00	86.6 dB	2024-11-16 13:38:00	99.8 dB	2024-11-16 13:23:42
L _S (min)	46.3 dB	2024-11-16 13:32:36	55.9 dB	2024-11-16 13:28:23	59.6 dB	2024-11-16 13:31:27
L _F (min)	45.1 dB	2024-11-16 13:24:01	54.3 dB	2024-11-16 13:35:23	57.5 dB	2024-11-16 13:28:22
L _I (min)	46.3 dB	2024-11-16 13:32:36	56.3 dB	2024-11-16 13:28:22	60.5 dB	2024-11-16 13:31:27
L _{Peak} (max)	96.2 dB	2024-11-16 13:38:01	97.6 dB	2024-11-16 13:38:38	102.1 dB	2024-11-16 13:23:42

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	0	0:00:00.0

Statistics

LAS 5.0	69.8 dB
LAS 10.0	66.9 dB
LAS 33.3	53.1 dB
LAS 50.0	50.1 dB
LAS 66.6	49.1 dB
LAS 90.0	47.6 dB

APPENDIX C

RCNM Model Construction Noise Prior to Mitigation Calculations Printouts

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Demolition Unmitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to East	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	10	0
Excavator	No	40		80.7	60	0
Excavator	No	40		80.7	110	0
Dozer	No	40		81.7	160	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day Lmax	Day Leq	Evening Lmax	Evening Leq
Concrete Saw	103.6	96.6	N/A	N/A	N/A	N/A
Excavator	79.1	75.1	N/A	N/A	N/A	N/A
Excavator	73.9	69.9	N/A	N/A	N/A	N/A
Dozer	71.6	67.6	N/A	N/A	N/A	N/A
Total	104	97	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Demolition Unmitigated

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to South	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20.0		89.6	14	0
Excavator	No	40		80.7	64	0
Excavator	No	40		80.7	114	0
Dozer	No	40		81.7	164	0

Equipment	Calculated (dBA)		Results			
			Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Concrete Saw	100.6	94	N/A	N/A	N/A	N/A
Excavator	78.6	74.6	N/A	N/A	N/A	N/A
Excavator	73.6	69.6	N/A	N/A	N/A	N/A
Dozer	71.4	67.4	N/A	N/A	N/A	N/A
Total	101	94	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Demolition Unmitigated

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	55.0	55.0	55

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	96	0
Excavator	No	40		80.7	146	0
Excavator	No	40		80.7	196	0
Dozer	No	40		81.7	246	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day		Evening	
Concrete Saw	83.9	76.9	Lmax	Leq	Lmax	Leq
Excavator	71.4	67.4	N/A	N/A	N/A	N/A
Excavator	68.8	64.9	N/A	N/A	N/A	N/A
Dozer	67.8	63.9	N/A	N/A	N/A	N/A
Total	84	78	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Demolition Unmitigated

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Park to North	Commercial	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	156	0
Excavator	No	40		80.7	206	0
Excavator	No	40		80.7	256	0
Dozer	No	40		81.7	306	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Noise Limits (dBA) Evening	
Concrete Saw	79.7	72.7	N/A	N/A	N/A	N/A
Excavator	68.4	64.4	N/A	N/A	N/A	N/A
Excavator	66.5	62.5	N/A	N/A	N/A	N/A
Dozer	65.9	62.0	N/A	N/A	N/A	N/A
Total	80	74	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Site Preparation Unmitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
Nearest Homes to East	Residential	60.3	60.3	60.3			
Description		Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)		
Tractor		No	40	84		10	0
Equipment		Calculated (dBA)		Results Noise Limits (dBA)			
		*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Tractor		98	94	N/A	N/A	N/A	N/A
Total		98	94	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
Nearest Homes to South	Residential	60.3	60.3	60.3			
Description		Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)		
Tractor		No	40	84.0		14	0
Equipment		Calculated (dBA)		Results Noise Limits (dBA)			
		*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Tractor		95.1	91.1	N/A	N/A	N/A	N/A
Total		95	91	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Site Preparation Unmitigated

---- Receptor #3 ----

		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Nearest Homes to West	Residential	55.0	55.0	55.0			
				Equipment			
		Impact		Spec	Actual	Receptor	Estimated
Description		Device	Usage(%)	Lmax	Lmax	Distance	Shielding
Tractor		No	40	(dBA)	(dBA)	(feet)	(dBA)
				84		96	0
				Results			
		Calculated (dBA)		Noise Limits (dBA)			
				Day	Evening		
		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment		78.3	74.4	N/A	N/A	N/A	N/A
Tractor							
	Total	78	74	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Park to North	Commercial	55.0	55.0	55.0			
				Equipment			
		Impact		Spec	Actual	Receptor	Estimated
Description		Device	Usage(%)	Lmax	Lmax	Distance	Shielding
Tractor		No	40	(dBA)	(dBA)	(feet)	(dBA)
				84		156	0
				Results			
		Calculated (dBA)		Noise Limits (dBA)			
				Day	Evening		
		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Equipment		74.1	70.1	N/A	N/A	N/A	N/A
Tractor							
	Total	74	70	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Grading Unmitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to East	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Grader	No	40	85		10	0
Dozer	No	40		81.7	60	0
Scraper	No	40		83.6	110	0
Scraper	No	40		83.6	160	0
Tractor	No	40	84		210	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)		Evening	Leq
			Day	Day		
Grader	99.0	95.0	Lmax	Leq	Lmax	Leq
Grader	99.0	95.0	N/A	N/A	N/A	N/A
Dozer	80.1	76.1	N/A	N/A	N/A	N/A
Scraper	76.7	72.8	N/A	N/A	N/A	N/A
Scraper	73.5	69.5	N/A	N/A	N/A	N/A
Tractor	71.5	67.6	N/A	N/A	N/A	N/A
Total	99	95	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Grading Unmitigated

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to South	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Grader	No	40	85		14	0
Dozer	No	40		81.7	64	0
Scraper	No	40		83.6	114	0
Scraper	No	40		83.6	164	0
Tractor	No	40	84		214	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)		Evening	Leq
			Day	Day		
Grader	96.1	92.1	Lmax	Leq	Lmax	Leq
Grader	96.1	92.1	N/A	N/A	N/A	N/A
Dozer	79.5	75.5	N/A	N/A	N/A	N/A
Scraper	76.4	72.4	N/A	N/A	N/A	N/A
Scraper	73.3	69.3	N/A	N/A	N/A	N/A
Tractor	71.4	67.4	N/A	N/A	N/A	N/A
Total	96	92	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Grading Unmitigated

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	55.0	55.0	55

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Grader	No	40	85		96	0
Dozer	No	40		81.7	146	0
Scraper	No	40		83.6	196	0
Scraper	No	40		83.6	246	0
Tractor	No	40	84		296	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Noise Limits (dBA) Evening	
			Lmax	Leq	Lmax	Leq
Grader	79.3	75.4	N/A	N/A	N/A	N/A
Dozer	72.4	68.4	N/A	N/A	N/A	N/A
Scraper	71.7	67.7	N/A	N/A	N/A	N/A
Scraper	69.7	65.8	N/A	N/A	N/A	N/A
Tractor	68.6	64.6	N/A	N/A	N/A	N/A
Total	79	77	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Grading Unmitigated

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)			Equipment	Actual	Receptor	Estimated
		Daytime	Evening	Night				
Park to North	Commercial	55.0	55.0	55.0				
Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)		
Grader	No	40	85		156	0		
Dozer	No	40		81.7	206	0		
Scraper	No	40		83.6	256	0		
Scraper	No	40		83.6	306	0		
Tractor	No	40	84		356	0		

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Grader	75.1	71.1	N/A	N/A	N/A	N/A
Dozer	69.4	65.4	N/A	N/A	N/A	N/A
Scraper	69.4	65.4	N/A	N/A	N/A	N/A
Scraper	67.8	63.9	N/A	N/A	N/A	N/A
Tractor	67.0	63.0	N/A	N/A	N/A	N/A
Total	75	74	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Building Construction Unmitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to East	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Gradall	No	40		83.4	10	0
Generator	No	50		80.6	60	0
Front End Loader	No	40		79.1	110	0
Tractor	No	40	84		160	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day Lmax	Day Leq	Evening Lmax	Evening Leq
Gradall	97.4	93.4	N/A	N/A	N/A	N/A
Generator	79	76	N/A	N/A	N/A	N/A
Front End Loader	72.3	68.3	N/A	N/A	N/A	N/A
Tractor	73.9	69.9	N/A	N/A	N/A	N/A
Total	97	94	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Building Construction Unmitigated

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to South	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Gradall	No	40		83.4	14	0
Generator	No	50		80.6	64	0
Front End Loader	No	40		79.1	114	0
Tractor	No	40	84		164	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day Lmax	Day Leq	Evening Lmax	Evening Leq
Gradall	94.5	90.5	N/A	N/A	N/A	N/A
Generator	78.5	75.5	N/A	N/A	N/A	N/A
Front End Loader	72.0	68.0	N/A	N/A	N/A	N/A
Tractor	73.7	69.7	N/A	N/A	N/A	N/A
Total	95	91	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Building Construction Unmitigated

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Gradall	No	40		83.4	96	0
Generator	No	50		80.6	146	0
Front End Loader	No	40		79.1	196	0
Tractor	No	40	84		246	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day		Evening	
			Lmax	Leq	Lmax	Leq
Gradall	77.7	73.8	N/A	N/A	N/A	N/A
Generator	71.3	68.3	N/A	N/A	N/A	N/A
Front End Loader	67.2	63.3	N/A	N/A	N/A	N/A
Tractor	70.2	66.2	N/A	N/A	N/A	N/A
Total	78	76	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Building Construction Unmitigated

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Park to North	Commercial	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Gradall	No	40		83.4	156	0
Generator	No	50		80.6	206	0
Front End Loader	No	40		79.1	256	0
Tractor	No	40	84.0		306	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Noise Limits (dBA)	
Gradall	73.5	69.5	N/A	N/A	Day Lmax	Leq
Generator	68.3	65.3	N/A	N/A	Evening Lmax	Leq
Front End Loader	64.9	60.9	N/A	N/A		
Tractor	68.3	64.3	N/A	N/A		
Total	74	72	N/A	N/A		

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Paving Unmitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to East	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Paver	No	50		77.2	10	0
Paver	No	50		77.2	60	0
Roller	No	20		80	110	0
Roller	No	20		80.0	160	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)		Lmax	Leq
			Day	Evening		
Paver	91.2	88.2	N/A	N/A	N/A	N/A
Paver	75.6	72.6	N/A	N/A	N/A	N/A
Roller	73.2	66.2	N/A	N/A	N/A	N/A
Roller	69.9	62.9	N/A	N/A	N/A	N/A
Total	91	88	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Paving Unmitigated

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to South	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	14	0
Paver	No	50		77.2	64	0
Roller	No	20		80	114	0
Roller	No	20		80	164	0

Equipment	Calculated (dBA)		Results			
			Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Paver	88.3	85.3	N/A	N/A	N/A	N/A
Paver	75.1	72.1	N/A	N/A	N/A	N/A
Roller	72.8	65.9	N/A	N/A	N/A	N/A
Roller	69.7	62.7	N/A	N/A	N/A	N/A
Total	88	86	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Paving Unmitigated

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	96	0
Paver	No	50		77.2	146	0
Roller	No	20		80	196	0
Roller	No	20		80	246	0

Equipment	Calculated (dBA)		Results			
			Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Paver	71.6	68.5	N/A	N/A	N/A	N/A
Paver	67.9	64.9	N/A	N/A	N/A	N/A
Roller	68.1	61.1	N/A	N/A	N/A	N/A
Roller	66.2	59.2	N/A	N/A	N/A	N/A
Total	72	71	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Paving Unmitigated

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Park to North	Commercial	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	156	0
Paver	No	50		77.2	206	0
Roller	No	20		80	256	0
Roller	No	20		80	306	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Noise Limits (dBA)	
Paver	67.3	64.3	N/A	N/A	Lmax	Leq
Paver	64.9	61.9	N/A	N/A	N/A	N/A
Roller	65.8	58.8	N/A	N/A	N/A	N/A
Roller	64.3	57.3	N/A	N/A	N/A	N/A
Total	67	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: 9/25/2025

Case Description: 1501 Del Norte St Residential - Painting Unmitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to East	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	10	0
Compressor (air)	No	40		77.7	60	0

Equipment		Results					
		Calculated (dBA)		Noise Limits (dBA)			
		*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Compressor (air)		91.6	87.7	N/A	N/A	N/A	N/A
Compressor (air)		76.1	72.1	N/A	N/A	N/A	N/A
Total		92	88	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Painting Unmitigated

---- Receptor #2 ----

		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Nearest Homes to South	Residential	60.3	60.3	60.3			
					Equipment		
				Spec	Actual	Receptor	Estimated
		Impact		Lmax	Lmax	Distance	Shielding
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)		No	40		77.7	14	0
Compressor (air)		No	40		77.7	64	0
				Results			
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		88.7	84.7	N/A	N/A	N/A	N/A
Compressor (air)		75.5	71.5	N/A	N/A	N/A	N/A
	Total	89	85	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Nearest Homes to West	Residential	55.0	55.0	55.0			
					Equipment		
		Impact		Spec	Actual	Receptor	Estimated
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Compressor (air)		No	40		77.7	96	0
Compressor (air)		No	40		77.7	146	0
				Results			
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		72.0	68.0	N/A	N/A	N/A	N/A
Compressor (air)		68.4	64.4	N/A	N/A	N/A	N/A
	Total	72	70	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Painting Unmitigated

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Park to North	Commercial	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	156	0
Compressor (air)	No	40		77.7	206	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Noise Limits (dBA)	
Compressor (air)	67.8	63.8	N/A	N/A	Lmax	Leq
Compressor (air)	65.4	61.4	N/A	N/A	N/A	N/A
Total	68	66	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX D

RCNM Model Mitigated Construction Noise Calculations Printouts

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Demolition Mitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to East	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	26	10
Excavator	No	40		80.7	76	10
Excavator	No	40		80.7	126	10
Dozer	No	40		81.7	176	10

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day		Evening	
			Lmax	Leq	Lmax	Leq
Concrete Saw	85.3	78.3	N/A	N/A	N/A	N/A
Excavator	67.1	63.1	N/A	N/A	N/A	N/A
Excavator	62.7	58.7	N/A	N/A	N/A	N/A
Dozer	60.7	56.8	N/A	N/A	N/A	N/A
Total	85	79	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Demolition Mitigated

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to South	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	26	10
Excavator	No	40		80.7	76	10
Excavator	No	40		80.7	126	10
Dozer	No	40		81.7	176	10

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day		Evening	
			Lmax	Leq	Lmax	Leq
Concrete Saw	85.3	78	N/A	N/A	N/A	N/A
Excavator	67.1	63.1	N/A	N/A	N/A	N/A
Excavator	62.7	58.7	N/A	N/A	N/A	N/A
Dozer	60.7	56.8	N/A	N/A	N/A	N/A
Total	85	79	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Demolition Mitigated

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	55.0	55.0	55

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	96	0
Excavator	No	40		80.7	146	0
Excavator	No	40		80.7	196	0
Dozer	No	40		81.7	246	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)		Evening	
			Day Lmax	Day Leq	Lmax	Leq
Concrete Saw	84	77	N/A	N/A	N/A	N/A
Excavator	71	67	N/A	N/A	N/A	N/A
Excavator	69	65	N/A	N/A	N/A	N/A
Dozer	68	64	N/A	N/A	N/A	N/A
Total	84	78	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Demolition Mitigated

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Park to North	Commercial	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	156	0
Excavator	No	40		80.7	206	0
Excavator	No	40		80.7	256	0
Dozer	No	40		81.7	306	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Noise Limits (dBA) Evening	
			Lmax	Leq	Lmax	Leq
Concrete Saw	79.7	72.7	N/A	N/A	N/A	N/A
Excavator	68.4	64.4	N/A	N/A	N/A	N/A
Excavator	66.5	62.5	N/A	N/A	N/A	N/A
Dozer	65.9	62.0	N/A	N/A	N/A	N/A
Total	80	74	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Site Preparation Mitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
Nearest Homes to East	Residential	60.3	60.3	60.3			
Description		Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)		
Tractor		No	40	84		26	10
Equipment		Calculated (dBA)		Results Noise Limits (dBA)			
		*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Tractor		79.7	75.7	N/A	N/A	N/A	N/A
Total		80	76	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
Nearest Homes to South	Residential	60.3	60.3	60.3			
Description		Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)		
Tractor		No	40	84.0		26	10
Equipment		Calculated (dBA)		Results Noise Limits (dBA)			
		*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Tractor		79.7	75.7	N/A	N/A	N/A	N/A
Total		80	76	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Site Preparation Mitigated

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
Nearest Homes to West	Residential	55	55	55			
Description		Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)		
Tractor		No	40	84		96	0
Equipment		Results		Noise Limits (dBA)			
		Calculated (dBA)		Day	Evening		
		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor		78.3	74.4	N/A	N/A	N/A	N/A
Total		78	74	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
Park to North	Commercial	55.0	55.0	55.0			
Description		Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)		
Tractor		No	40	84		156	0
Equipment		Results		Noise Limits (dBA)			
		Calculated (dBA)		Day	Evening		
		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor		74.1	70.1	N/A	N/A	N/A	N/A
Total		74	70	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Grading Mitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to East	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Grader	No	40	85		26	10
Dozer	No	40		81.7	76	10
Scraper	No	40		83.6	126	10
Scraper	No	40		83.6	176	10
Tractor	No	40	84		226	10

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day	Evening		
			Lmax	Leq	Lmax	Leq
Grader	80.7	76.7	N/A	N/A	N/A	N/A
Dozer	68.0	64.1	N/A	N/A	N/A	N/A
Scraper	65.6	61.6	N/A	N/A	N/A	N/A
Scraper	62.6	58.7	N/A	N/A	N/A	N/A
Tractor	60.9	56.9	N/A	N/A	N/A	N/A
Total	81	77	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025
Case Description: 1501 Del Norte St Residential - Grading Mitigated

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to South	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Grader	No	40	85.0		26	10
Dozer	No	40		81.7	76	10
Scraper	No	40		83.6	126	10
Scraper	No	40		83.6	176	10
Tractor	No	40	84		226	10

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day	Evening		
			Lmax	Leq	Lmax	Leq
Grader	80.7	76.7	N/A	N/A	N/A	N/A
Dozer	68.0	64.1	N/A	N/A	N/A	N/A
Scraper	65.6	61.6	N/A	N/A	N/A	N/A
Scraper	62.6	58.7	N/A	N/A	N/A	N/A
Tractor	60.9	56.9	N/A	N/A	N/A	N/A
Total	81	77	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025
Case Description: 1501 Del Norte St Residential - Grading Mitigated

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Grader	No	40	85		96	0
Dozer	No	40		81.7	146	0
Scraper	No	40		83.6	196	0
Scraper	No	40		83.6	246	0
Tractor	No	40	84		296	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Noise Limits (dBA) Evening	
			Lmax	Leq	Lmax	Leq
Grader	79.3	75.4	N/A	N/A	N/A	N/A
Dozer	72.4	68.4	N/A	N/A	N/A	N/A
Scraper	71.7	67.7	N/A	N/A	N/A	N/A
Scraper	69.7	65.8	N/A	N/A	N/A	N/A
Tractor	68.6	64.6	N/A	N/A	N/A	N/A
Total	79	77	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Grading Mitigated

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Park to North	Commercial	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		156	0
Dozer	No	40		81.7	206	0
Scraper	No	40		83.6	256	0
Scraper	No	40		83.6	306	0
Tractor	No	40	84		356	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Noise Limits (dBA)	
Grader	75.1	71.1	N/A	N/A	Day Lmax	Leq
Dozer	69.4	65.4	N/A	N/A	Evening Lmax	Leq
Scraper	69.4	65.4	N/A	N/A		
Scraper	67.8	63.9	N/A	N/A		
Tractor	67.0	63.0	N/A	N/A		
Total	75	74	N/A	N/A		

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Building Construction Mitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to East	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Gradall	No	40		83.4	26	10
Generator	No	50		80.6	76	10
Front End Loader	No	40		79.1	126	10
Tractor	No	40	84		176	10

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day		Evening	
			Lmax	Leq	Lmax	Leq
Gradall	79.1	75.1	N/A	N/A	N/A	N/A
Generator	67	64	N/A	N/A	N/A	N/A
Front End Loader	61.1	57.1	N/A	N/A	N/A	N/A
Tractor	63.1	59.1	N/A	N/A	N/A	N/A
Total	79	76	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Building Construction Mitigated

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to South	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Gradall	No	40		83.4	26	10
Generator	No	50		80.6	76	10
Front End Loader	No	40		79.1	126	10
Tractor	No	40	84		176	10

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day		Evening	
			Lmax	Leq	Lmax	Leq
Gradall	79.1	75.1	N/A	N/A	N/A	N/A
Generator	67.0	64.0	N/A	N/A	N/A	N/A
Front End Loader	61.1	57.1	N/A	N/A	N/A	N/A
Tractor	63.1	59.1	N/A	N/A	N/A	N/A
Total	79	76	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Building Construction Mitigated

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Gradall	No	40		83.4	96	0
Generator	No	50		80.6	146	0
Front End Loader	No	40		79.1	196	0
Tractor	No	40	84		246	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day		Evening	
			Lmax	Leq	Lmax	Leq
Gradall	77.7	73.8	N/A	N/A	N/A	N/A
Generator	71.3	68.3	N/A	N/A	N/A	N/A
Front End Loader	67.2	63.3	N/A	N/A	N/A	N/A
Tractor	70.2	66.2	N/A	N/A	N/A	N/A
Total	78	76	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Building Construction Mitigated

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Park to North	Commercial	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Gradall	No	40		83.4	156	0
Generator	No	50		80.6	206	0
Front End Loader	No	40		79.1	256	0
Tractor	No	40	84		306	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Noise Limits (dBA) Evening	
			Lmax	Leq	Lmax	Leq
Gradall	73.5	69.5	N/A	N/A	N/A	N/A
Generator	68.3	65.3	N/A	N/A	N/A	N/A
Front End Loader	64.9	60.9	N/A	N/A	N/A	N/A
Tractor	68.3	64.3	N/A	N/A	N/A	N/A
Total	74	72	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Paving Mitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to East	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	26	10
Paver	No	50		77.2	76	10
Roller	No	20		80	126	10
Roller	No	20		80.0	176	10

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day		Evening	
			Lmax	Leq	Lmax	Leq
Paver	72.9	69.9	N/A	N/A	N/A	N/A
Paver	63.6	60.6	N/A	N/A	N/A	N/A
Roller	62.0	55.0	N/A	N/A	N/A	N/A
Roller	59.1	52.1	N/A	N/A	N/A	N/A
Total	73	71	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025
Case Description: 1501 Del Norte St Residential - Paving Mitigated

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to South	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Paver	No	50		77.2	26	10
Paver	No	50		77.2	76	10
Roller	No	20		80	126	10
Roller	No	20		80	176	10

Equipment	Calculated (dBA)		Results			
			Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Paver	72.9	69.9	N/A	N/A	N/A	N/A
Paver	63.6	60.6	N/A	N/A	N/A	N/A
Roller	62.0	55.0	N/A	N/A	N/A	N/A
Roller	59.1	52.1	N/A	N/A	N/A	N/A
Total	73	71	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025
Case Description: 1501 Del Norte St Residential - Paving Mitigated

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to West	Residential	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	96	0
Paver	No	50		77.2	146	0
Roller	No	20		80	196	0
Roller	No	20		80	246	0

Equipment	Calculated (dBA)		Results			
			Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Paver	71.6	68.5	N/A	N/A	N/A	N/A
Paver	67.9	64.9	N/A	N/A	N/A	N/A
Roller	68.1	61.1	N/A	N/A	N/A	N/A
Roller	66.2	59.2	N/A	N/A	N/A	N/A
Total	72	71	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Paving Mitigated

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Park to North	Commercial	55.0	55.0	55.0

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	156	0
Paver	No	50		77.2	206	0
Roller	No	20		80	256	0
Roller	No	20		80	306	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Noise Limits (dBA) Evening	
Paver	67.3	64.3	Lmax	Leq	Lmax	Leq
Paver	64.9	61.9	N/A	N/A	N/A	N/A
Roller	65.8	58.8	N/A	N/A	N/A	N/A
Roller	64.3	57.3	N/A	N/A	N/A	N/A
Total	67	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: 9/25/2025

Case Description: 1501 Del Norte St Residential - Painting Mitigated

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Homes to East	Residential	60.3	60.3	60.3

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	26	10
Compressor (air)	No	40		77.7	36	10

Equipment	Calculated (dBA)		Results Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Compressor (air)	73.3	69.4	N/A	N/A	N/A	N/A
Compressor (air)	70.5	66.5	N/A	N/A	N/A	N/A
Total	73	71	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 9/25/2025
Case Description: 1501 Del Norte St Residential - Painting Mitigated

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
Nearest Homes to South	Residential	60.3	60.3	60.3			
Description		Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)		
Compressor (air)		No	40		77.7	26	10
Compressor (air)		No	40		77.7	36	10
Results							
				Noise Limits (dBA)			
				Day	Evening		
				Lmax	Leq	Lmax	Leq
Compressor (air)				N/A	N/A	N/A	N/A
Compressor (air)				N/A	N/A	N/A	N/A
Total				N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
Nearest Homes to West	Residential	55.0	55.0	55.0			
Description		Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)	Actual Lmax (dBA)		
Compressor (air)		No	40		77.7	96	0
Compressor (air)		No	40		77.7	96	0
Results							
				Noise Limits (dBA)			
				Day	Evening		
				Lmax	Leq	Lmax	Leq
Compressor (air)				N/A	N/A	N/A	N/A
Compressor (air)				N/A	N/A	N/A	N/A
Total				N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 9/25/2025

Case Description: 1501 Del Norte St Residential - Painting Mitigated

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)			Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
		Daytime	Evening	Night				
Park to North	Commercial	55.0	55.0	55.0				
Description		Impact		Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
		Device						
Compressor (air)		No		40		77.7	156	0
Compressor (air)		No		40		77.7	156	0

Equipment		Calculated (dBA)		Results			
		*Lmax	Leq	Day		Noise Limits (dBA) Evening	
				Lmax	Leq	Lmax	Leq
Compressor (air)		67.8	63.8	N/A	N/A	N/A	N/A
Compressor (air)		67.8	63.8	N/A	N/A	N/A	N/A
Total		68	67	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX E

FHWA Model Roadway Noise Calculation Printouts

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

Scenario: EXISTING CONDITIONS

Project: 1501 Del Norte Street Residential
Site Conditions: Soft

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Thoroughfare)			Vehicle Mix 3 (SR-91)		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	63.35%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	2.15%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	2.65%
									0.25%
									1.94%
									4.85%

Road Name: Nora Avenue		Segment: North of Driveway 1				Roadway Classification: Local					
Average Daily Traffic: 1090 Vehicles		Vehicle Speed: 25 MPH		Vehicle Mix: 1							
		NOISE PARAMETERS AT 55 FEET FROM CENTERLINE				(Equiv. Lane Dist: 54.55 ft)					
		Noise Adjustments		Unmitigated Noise Levels							
Vehicle Type	RECEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	59.44	-9.02	-0.67	-1.20	48.54	46.42	45.11	39.10	47.52	48.14	70 dBA: 2
Medium Trucks	71.09	-26.26	-0.67	-1.20	42.95	21.70	27.73	9.43	22.58	25.33	65 dBA: 4
Heavy Trucks	78.74	-30.22	-0.67	-1.20	46.65	21.30	17.90	22.55	28.75	28.84	60 dBA: 8
		Total:		51.38		46.45	45.20	39.20	47.59	48.22	55 dBA: 18

Road Name: Nora Avenue		Segment: North of Del Norte Street				Roadway Classification: Local								
Average Daily Traffic: 1090 Vehicles		Vehicle Speed: 25 MPH		Vehicle Mix: 1										
		NOISE PARAMETERS AT 55 FEET FROM CENTERLINE				(Equiv. Lane Dist: 54.55 ft)								
		Noise Adjustments			Unmitigated Noise Levels									
Vehicle Type		REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)			
Automobiles		59.44	-9.02	-0.67	-1.20	48.54	46.42	45.11	39.10	47.52	48.14	70 dBA:	2	2
Medium Trucks		71.09	-26.26	-0.67	-1.20	42.95	21.70	27.73	9.43	22.58	25.33	65 dBA:	4	4
Heavy Trucks		78.74	-30.22	-0.67	-1.20	46.65	21.30	17.90	22.55	28.75	28.84	60 dBA:	8	9
		Total:				51.38	46.45	45.20	39.20	47.59	48.22	55 dBA:	18	19

Road Name: Nora Avenue		Segment: South of Del Norte Street				Roadway Classification: Local					
Average Daily Traffic: 920 Vehicles		Vehicle Speed: 25 MPH		Vehicle Mix: 1							
		NOISE PARAMETERS AT 55 FEET FROM CENTERLINE				(Equiv. Lane Dist: 54.55 ft)					
		Noise Adjustments		Unmitigated Noise Levels							
Vehicle Type	RECEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Centerline Distance to Noise Contour (in feet)	
Automobiles	59.44	-9.76	-0.67	-1.20	47.81	45.69	44.37	38.36	46.78	47.41	70 dBA: 2
Medium Trucks	71.09	-27.00	-0.67	-1.20	42.22	20.97	26.99	8.70	21.84	24.59	65 dBA: 3
Heavy Trucks	78.74	-30.95	-0.67	-1.20	45.91	20.56	17.16	21.81	28.01	28.11	60 dBA: 7
Total:				50.65		45.71	44.46	38.46	46.85	47.48	55 dBA: 16
										17	

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

Scenario: EXISTING CONDITIONS

Project: 1501 Del Norte Street Residential
Site Conditions: Soft

Road Name: Yuleton Avenue		Segment: South of Del Norte Street		Roadway Classification: Local									
Average Daily Traffic: 160 Vehicles		Vehicle Speed: 25 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 50 FEET FROM CENTERLINE				(Equiv. Lane Dist: 49.51 ft)									
Noise Adjustments				Unmitigated Noise Levels									
REME Traffic Adj.		Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles	59.44	-17.36	-0.04	-1.20	40.84	38.72	37.41	31.40	39.82	40.44	70 dBA:	0	1
Medium Trucks	71.09	-34.60	-0.04	-1.20	35.25	14.00	20.02	1.73	14.88	17.63	65 dBA:	1	1
Heavy Trucks	78.74	-38.55	-0.04	-1.20	38.95	13.60	10.20	14.85	21.05	21.14	60 dBA:	2	3
Total:				43.68	38.75	37.49	31.50	39.89	40.52	55 dBA:	5	5	

Road Name: Sunset Avenue		Segment: North of Workman Avenue		Roadway Classification: Commercial Thoroughfare									
Average Daily Traffic: 20570 Vehicles		Vehicle Speed: 40 MPH		Vehicle Mix: 2									
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE		(Equiv. Lane Dist: 53.58 ft)		Centerline Distance to Noise Contour (in feet)									
Noise Adjustments		Unmitigated Noise Levels											
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles	67.36	1.44	-0.55	-1.20	67.05	64.68	63.38	57.33	65.76	66.39	70 dBA:	36	39
Medium Trucks	76.31	-13.42	-0.55	-1.20	61.14	41.93	34.15	43.35	49.51	49.54	65 dBA:	77	84
Heavy Trucks	81.16	-11.20	-0.55	-1.20	68.20	51.21	43.43	52.64	58.79	58.83	60 dBA:	166	180
Total:				71.13	64.89	63.43	58.73	66.64	67.17	55 dBA:	358	389	

Road Name: Del Norte Street		Segment: West of Yaleton		Roadway Classification: Local									
Average Daily Traffic: 280 Vehicles		Vehicle Speed: 25 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 35 FEET FROM CENTERLINE		(Equiv. Lane Dist: 34.29 ft)		Centerline Distance to Noise Contour (in feet)									
Noise Adjustments		Unmitigated Noise Levels											
Vehicle Type	REME L Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles	59.44	-14.93	2.35	-1.20	45.67	43.54	42.23	36.22	44.64	45.26	70 dBA:	1	1
Medium Trucks	71.09	-32.17	2.35	-1.20	40.08	18.83	24.85	6.55	19.70	22.45	65 dBA:	2	2
Heavy Trucks	78.74	-36.12	2.35	-1.20	43.77	18.42	15.02	19.67	25.87	25.97	60 dBA:	3	4
Total:				48.51	43.57	42.32	36.32	44.71	45.34	55 dBA:	7	8	

Road Name: Del Norte Street		Segment: East of Yuleton		Roadway Classification: Local									
Average Daily Traffic: 180 Vehicles		Vehicle Speed: 25 MPH		Vehicle Mix: 1									
NOISE PARAMETERS AT 35 FEET FROM CENTERLINE		(Equiv. Lane Dist: 34.29 ft)		Centerline Distance to Noise Contour (in feet)									
Noise Adjustments		Unmitigated Noise Levels											
Vehicle Type	REME Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles	59.44	-16.85	2.35	-1.20	43.75	41.62	40.31	34.30	42.72	43.35	70 dBA:	1	1
Medium Trucks	71.09	-34.08	2.35	-1.20	38.16	16.91	22.93	4.63	17.78	20.53	65 dBA:	1	1
Heavy Trucks	78.74	-38.04	2.35	-1.20	41.85	16.50	13.10	17.75	23.95	24.05	60 dBA:	2	3
Total:				46.59	41.65	40.40	34.40	42.79	43.42	55 dBA:	5	6	

Project: 1501 Del Norte Street Residential
Site Conditions: Soft

Average Daily Traffic: 1174 Vehicles		Vehicle Speed: 25 MPH			Vehicle Mix: 1			Roadway Classification: Local					
Vehicle Type		NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 54.55 ft)						Centerline Distance to Noise Contour (in feet)					
		Noise Adjustments			Unmitigated Noise Levels			Ldn	CNEL				
		REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.			Leq Night			
Automobiles	59.44	-8.70	-0.67	-1.20	48.87	46.75	45.43	39.42	47.84	48.47	70 dBA:	2	2
Medium Trucks	71.09	-25.94	-0.67	-1.20	43.28	22.03	28.05	9.76	22.90	25.65	65 dBA:	4	4
Heavy Trucks	78.74	-29.89	-0.67	-1.20	46.98	21.62	18.22	22.87	29.07	29.17	60 dBA:	9	9
Total:		51.71	46.77	45.52	39.52	47.91	48.54	55 dBA:	19	20			

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

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: 1501 Del Norte Street Residential
Site Conditions: Soft

Road Name: Yaleton Avenue		Segment: South of Del Norte Street		Roadway Classification: Local											
Average Daily Traffic: 414 Vehicles		Vehicle Speed: 25 MPH		Vehicle Mix: 1											
NOISE PARAMETERS AT 50 FEET FROM CENTERLINE		(Equiv. Lane Dist: 49.51 ft)										Centerline Distance to Noise Contour (in feet)			
Noise Adjustments		Unmitigated Noise Levels													
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL						
Automobiles	59.44	-13.22	-0.04	-1.20	44.98	42.85	41.54	35.53	43.95	44.58	70 dBA:	1	1		
Medium Trucks	71.09	-30.46	-0.04	-1.20	39.39	18.14	24.16	5.86	19.01	21.76	65 dBA:	2	2		
Heavy Trucks	78.74	-34.42	-0.04	-1.20	43.08	17.73	14.33	18.98	25.18	25.28	60 dBA:	4	5		
Total:				47.82	42.88	41.63	35.63	44.02	44.65	55 dBA:	9	10			

Road Name: Sunset Avenue

Segment: North of Workman Avenue

Average Daily Traffic: 21079 Vehicles		Vehicle Speed: 40 MPH		Vehicle Mix: 2		Roadway Classification: Commercial Thoroughfare							
NOISE PARAMETERS AT 60 FEET FROM CENTERLINE						(Equiv. Lane Dist: 53.58 ft)		Centerline Distance to Noise Contour (in feet)					
Noise Adjustments		Unmitigated Noise Levels											
Vehicle Type	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles	67.36	1.55	-0.55	-1.20	67.16	64.78	63.49	57.44	65.87	66.50	70 dBA:	36	39
Medium Trucks	76.31	-13.32	-0.55	-1.20	61.24	42.03	34.25	43.46	49.62	49.65	65 dBA:	78	85
Heavy Trucks	81.16	-11.10	-0.55	-1.20	68.31	51.32	43.54	52.74	58.90	58.93	60 dBA:	169	183
Total:					71.24	65.00	63.54	58.83	66.75	67.28	55 dBA:	364	395

Road Name: Del Norte Street

Segment: West of Yuleton

Average Daily Traffic: 571 Vehicles		Vehicle Speed: 25 MPH		Vehicle Mix: 1		Roadway Classification: Local								
NOISE PARAMETERS AT 35 FEET FROM CENTERLINE						(Equiv. Lane Dist: 34.29 ft)		Centerline Distance to Noise Contour (in feet)						
		Noise Adjustments		Unmitigated Noise Levels										
Vehicle Type		REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles		59.44	-11.83	2.35	-1.20	48.76	46.64	45.32	39.31	47.73	48.36	70 dBA:	1	1
Medium Trucks		71.09	-29.07	2.35	-1.20	43.17	21.92	27.94	9.65	22.79	25.54	65 dBA:	2	3
Heavy Trucks		78.74	-33.03	2.35	-1.20	46.87	21.51	18.12	22.76	28.96	29.06	60 dBA:	5	6
Total:		51.60	46.66	45.41	39.41	47.80	48.43	55 dBA:	12	13				

Road Name: Del Norte Street

Segment: East of Yuleton

Average Daily Traffic: 798 Vehicles		Vehicle Speed: 25 MPH		Vehicle Mix: 1		Roadway Classification: Local							
NOISE PARAMETERS AT 35 FEET FROM CENTERLINE		(Equiv. Lane Dist: 34.29 ft)				Centerline Distance to Noise Contour (in feet)							
Noise Adjustments		Unmitigated Noise Levels											
Vehicle Type	REMELE Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL				
Automobiles	59.44	-10.38	2.35	-1.20	50.21	48.09	46.78	40.77	49.19	49.81	70 dBA:	1	2
Medium Trucks	71.09	-27.62	2.35	-1.20	44.62	23.37	29.39	11.10	24.25	27.00	65 dBA:	3	3
Heavy Trucks	78.74	-31.57	2.35	-1.20	48.32	22.97	19.57	24.22	30.42	30.51	60 dBA:	7	7
Total:				53.05	48.12	46.87	40.87	49.26	49.89	55 dBA:	14	16	