Appendix F:
Noise Impact Analysis Report

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Noise Impact Analysis Report
Bon View Warehouse Project
City of Ontario, San Bernardino County, California

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Date: August 4, 2022
Revised: October 17, 2022

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ACRONYMS AND ABBREVIATIONS

ALUCP	Airport Land Use Compatibility Plan
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
CBC	California Building Standards Code
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibel
dBA/DD	dBA per each doubling of distance
DNL	Day-Night Level
EPA	United States Environmental Protection Agency
FAA	Federal Aviation Administration
FAR	floor area ratio
FCS	FirstCarbon Solutions
FEIR	Final Environmental Impact Report
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GI	General Industrial
in/sec	inch per second
L_{dn}	day/night average sound level
L_{eq}	equivalent continuous sound level
L_{max}	maximum noise level
PPV	peak particle velocity
rms	root mean square
SANBAG	San Bernardino Associated Governments
SCAG	Southern California Association of Governments
SR	State Route
VdB	vibration in decibels

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SECTION 1: INTRODUCTION

1.1 - Purpose of Analysis and Study Objectives

This Noise Impact Analysis Report has been prepared by FirstCarbon Solutions (FCS) to determine and document the off-site and on-site noise impacts associated with the proposed Bon View Warehouse Project (proposed project). The following is provided in this report:

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

1.2 - Project Summary

1.2.1 - Project Location

The 7-acre project site is located at 1514 and 1516 South Bon View Avenue in the City of Ontario, in San Bernardino County, California (Exhibit 1). The project site is surrounded by South Bon View Avenue, educational facilities and a vacant lot to the east–southeast, and industrial warehouse buildings to the north, west, and south (Exhibit 2).

1.2.2 - Project Description

The project applicant, Dedeaux Properties, Inc. is proposing to develop a warehouse up to approximately 167,600 square feet consisting of a 162,600-square-foot warehouse and 5,000-square-foot ground floor office (Exhibit 3). The proposed project would include 18 dock doors, one grade door, and 105 auto parking stalls. Access to the site would be provided via two driveways along South Bon Avenue. The proposed project would include a total of 19,588 square feet of off-site roadway and frontage improvements.

The project site is fully developed with several existing buildings associated with a towing service, plastering company, engine repair services, and associated paved and unpaved parking areas.

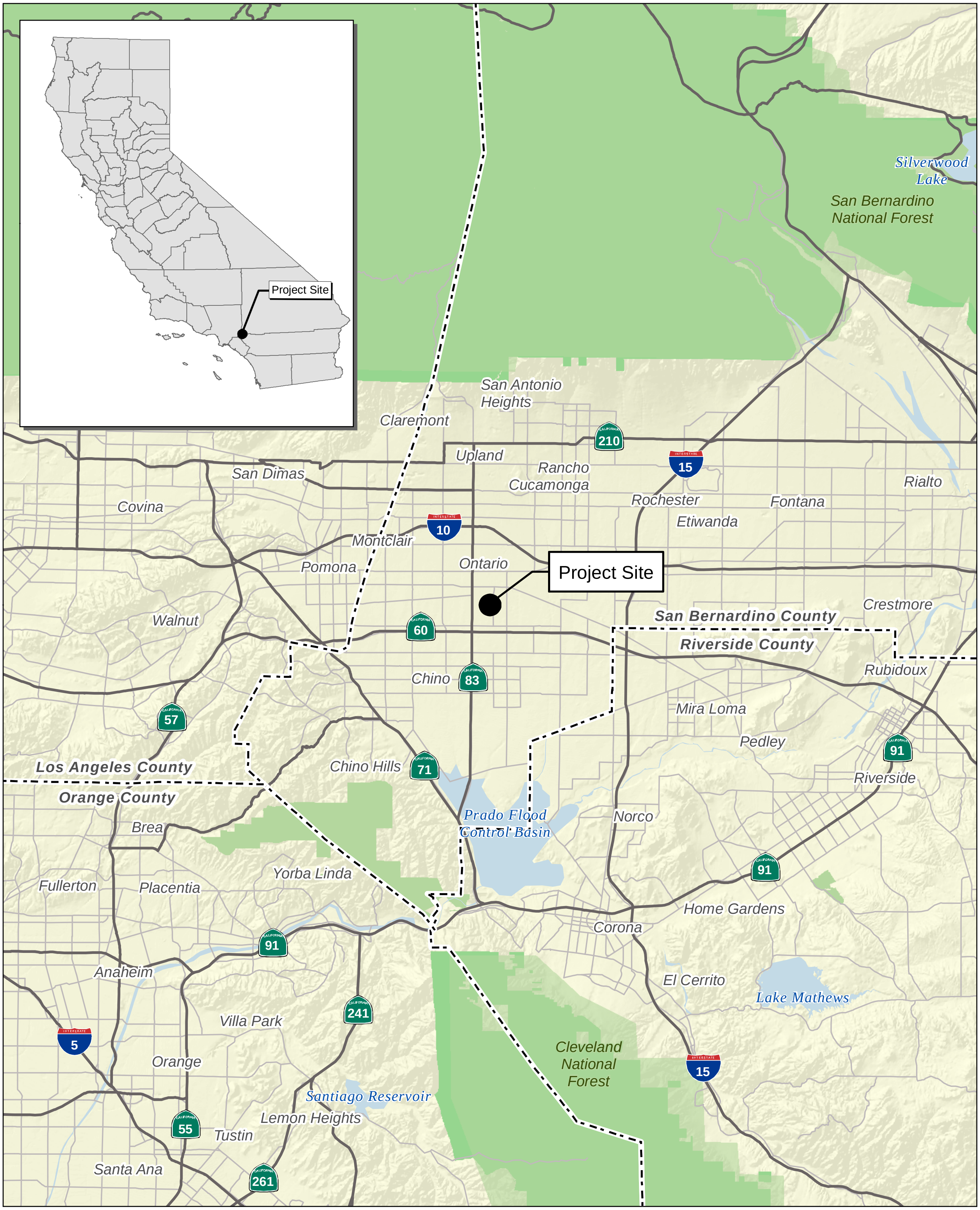
1.2.3 - Phasing and Construction

Construction of the proposed project and off-site roadway improvements is estimated to start in January 2023; grading of the site would take approximately 30 days. Construction would be completed in one phase that is estimated to begin in January 2023 and conclude in January 2024. The proposed project is expected to be operational in the first quarter of 2024.

1.2.4 - Operation

Hours of operation for the proposed project would be 24 hours a day, 7 days a week. Operational activities within the project site would comply with the permitted uses of the General Industrial (IG) District found in the Ontario Municipal Code (Municipal Code), which accommodates a wide range of manufacturing and assembly activities, storage and warehousing activities, and other similar uses developed at a maximum intensity of 0.55 floor area ratio (FAR).[1] The proposed project would employ approximately 30 to 40 employees on-site.

[1] City of Ontario. 2020. Ontario Development Code. Chapter 5.0, Zoning and Land Use. IG (General Industrial) Zoning District.



Source: Census 2000 Data, The California Spatial Information Library (CaSIL).

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5 2.5 0 5 Miles

Exhibit 1
Regional Location Map

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DEDEAUX PROPERTIES, INC.
BON VIEW WAREHOUSE PROJECT
NOISE IMPACT ANALYSIS REPORT

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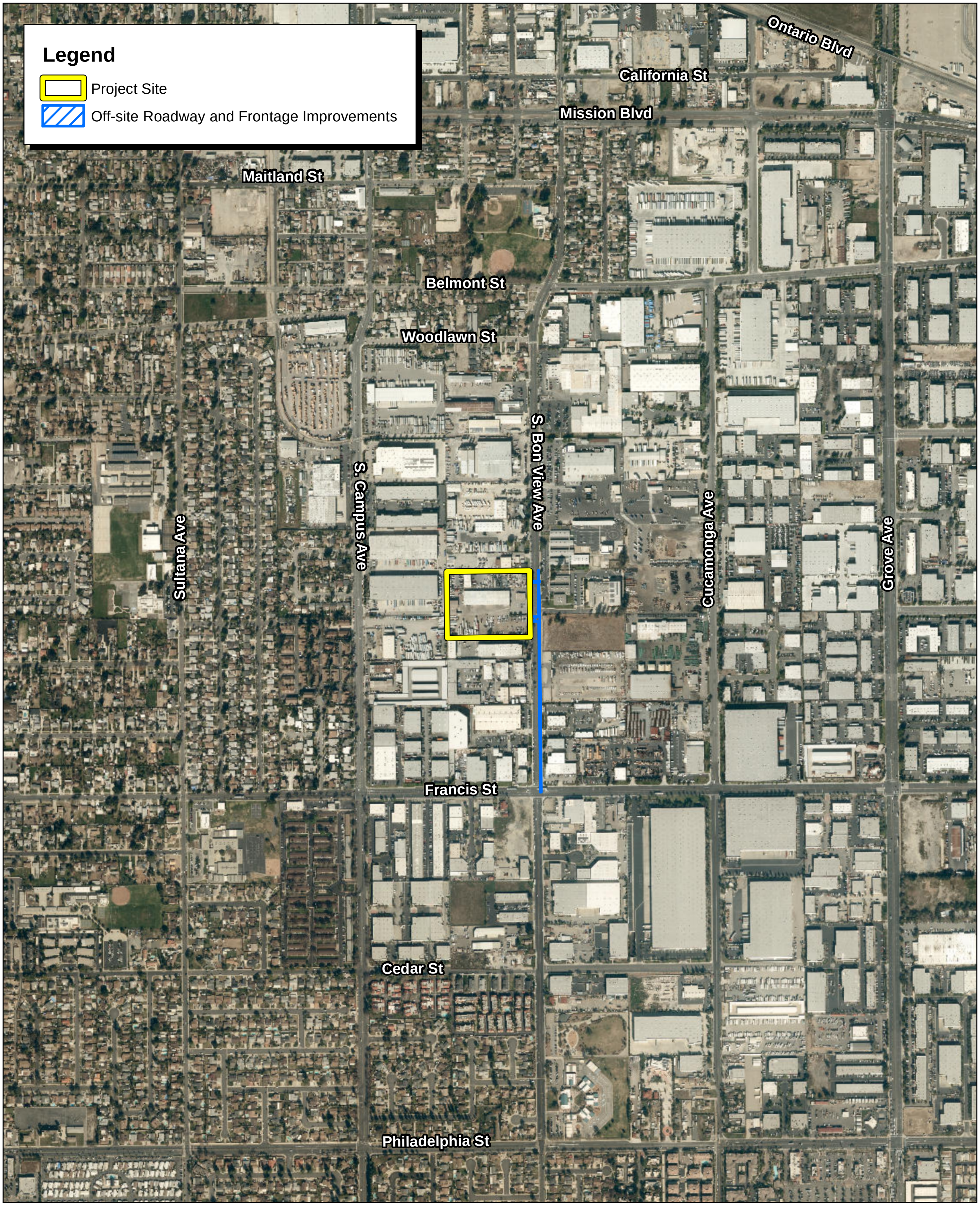

Source: ESRI Aerial Imagery.

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1,000 500 0 1,000
Feet

Exhibit 2
Local Vicinity Map

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DEDEAUX PROPERTIES, INC.
BON VIEW WAREHOUSE PROJECT
NOISE IMPACT ANALYSIS REPORT

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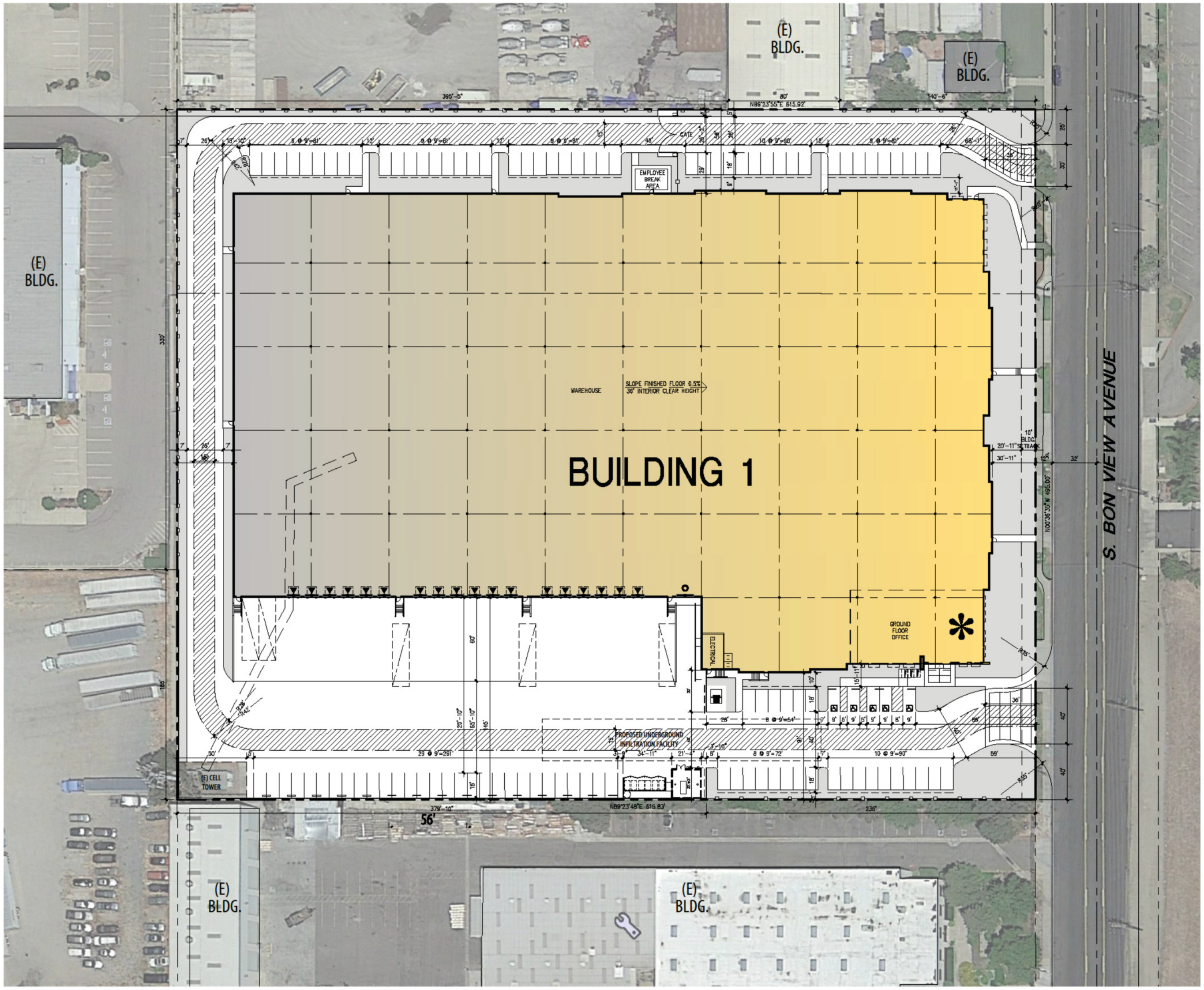

TABULATIONS

SITE AREA	SF	ACRES
Gross	304,865	7.00
Street Dedication	0	0.00
NET SITE AREA	**304,865**	**7.00**
BUILDING AREA		
Ground Floor Office		5,000
Warehouse		162,400
Total Building Footprint		167,400
Mezzanine		0
TOTAL BUILDING AREA		**167,400**
COVERAGE		**54.9%**
FAR (55% Max)		**54.9%**
PARKING REQUIRED		
Office Area	*5,000*	0
Office Area- Over 10%	1/250	0
Warehouse Area	*162,400*	
0 - 20,000 sf	1/1000	20
20,000 sf +	1/2000	80
TOTAL PARKING REQUIRED		**100**
(*) Allows for 10% Office Area		
PARKING PROVIDED		**105**
PARKING RATIO		0.63/1000
Dock Doors		**18**
Grade Level Doors		**1**
Trailer Stalls Required	1/4 Dock Doors	**4.5**
Trailer Stalls Provided		**5**
Parking Area		76,551
LANDSCAPE	%	Area (S.F.)
Required (Total Site)	10.00%	30,487
Provided	11.10%	33,854
Required (Parking Area)	7.00%	5,359
Provided	29.88%	22,872

Source: GAA Architects, 6/14/2022.

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Exhibit 3
Site Plan

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SECTION 2: NOISE AND VIBRATION FUNDAMENTALS

2.1 - Characteristics of Noise

Noise is generally defined as unwanted or objectionable sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and in the extreme, hearing impairment. Noise effects can be caused by pitch or loudness. *Pitch* is the number of complete vibrations or cycles per second of a wave that result in the range of tone from high to low; higher-pitched sounds are louder to humans than lower-pitched sounds. *Loudness* is the intensity or amplitude of sound.

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. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Only audible changes in existing ambient or background noise levels are considered potentially significant.

The human ear is not equally sensitive to all frequencies within the audible sound spectrum, so sound pressure level measurements can be weighted to better represent frequency-based sensitivity of average healthy human hearing. One such specific “filtering” of sound is called “A-weighting.” 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 that are audible to the human ear. Because decibels are logarithmic units, they cannot be added or subtracted by ordinary arithmetic means. For example, if one noise source produces a noise level of 70 dB, the addition of another noise source with the same noise level would not produce 140 dB; rather, they would combine to produce a noise level of 73 dB.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level. Noise levels diminish or attenuate as distance from the source increases based on an inverse square rule, depending on how the noise source is physically configured. Noise levels from a single-point source, such as a single piece of construction equipment at ground level, attenuate at a rate of 6 dB for each doubling of distance (between the single-point source of noise and the noise-sensitive receptor of concern). Heavily traveled roads with few gaps in traffic behave as continuous line sources and attenuate roughly at a rate of 3 dB per doubling of distance.

2.1.1 - Noise Descriptors

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise Equivalent Level (CNEL) or the day/night average level (L_{dn}) based on dBA. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

The descriptor Ln is the value exceeded n percent of the time period. For example, the L50 is the value exceeded 50 percent of the time or 30 minutes in any hour; this is the median noise level.

2.1.2 - Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source, as well as ground absorption, atmospheric conditions (wind, temperature gradients, and humidity) and refraction, and shielding by natural and manmade features. Sound from point sources, such as an air conditioning condenser, a piece of construction equipment, or an idling truck, radiates uniformly outward as it travels away from the source in a spherical pattern.

The attenuation or sound drop-off rate is 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 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 per each doubling of the distance (dBA/DD) is typically observed over soft ground with landscaping, as compared with a 6 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone, and very hard packed earth. For line sources, such as traffic noise on a roadway, a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3 dBA/DD drop-off rate for hard-site conditions. Table 1 briefly defines these measurement descriptors and other sound terminology used in this section.

Table 1: Sound Terminology

Term	Definition
Sound	A vibratory disturbance created by a vibrating object which, when transmitted by pressure waves through a medium such as air, can be detected by a receiving mechanism such as the human ear or a microphone.
Noise	Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
Ambient Noise	The composite of noise from all sources near and far in a given environment.
Decibel (dB)	A unitless measure of sound on a logarithmic scale, which represents the squared ratio of sound pressure amplitude to a reference sound pressure. The reference pressure is 20 micropascals, representing the threshold of human hearing (0 dB).
A-Weighted Decibel (dBA)	An overall frequency-weighted sound level that approximates the frequency response of the human ear.
Equivalent Noise Level (L_{eq})	The average sound energy occurring over a specified time period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period.
Maximum and Minimum Noise Levels (L_{max} and L_{min})	The maximum or minimum instantaneous sound level measured during a measurement period.
Day-Night Level (DNL or L_{dn})	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m. (nighttime).
Community Noise Equivalent Level (CNEL)	The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m.
Source: Data compiled by FirstCarbon Solutions (FCS) 2022.	

2.1.3 - Traffic Noise

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of noise levels, a doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. Based on the Federal Highway

Administration (FHWA) community noise assessment criteria, this change is "barely perceptible." For reference, a doubling of perceived noise levels would require an increase of approximately 10 dBA. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

2.1.4 - Stationary Noise

A stationary noise producer is any entity in a fixed location that emits noise. Examples of stationary noise sources include machinery, engines, energy production, and other mechanical or powered equipment and activities such as loading and unloading or public assembly that may occur at commercial, industrial, manufacturing, or institutional facilities. Furthermore, while noise generated by the use of motor vehicles over public roads is preempted from local regulation, the use of these vehicles is considered a stationary noise source when operated on private property such as at a construction-site, a truck terminal, or warehousing facility.

The effects of stationary noise depend on factors such as characteristics of the equipment and operations, distance and pathway between the generator and receptor, and weather. Stationary noise sources may be regulated at the point of manufacture (e.g., equipment or engines), with limitations on the hours of operation, or with provision of intervening structures, barriers, or topography.

Construction activities are a common source of stationary noise. Construction-period noise levels are higher than background ambient noise levels but eventually cease once construction is complete. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on each construction-site and, therefore, would change the noise levels as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 2 shows typical noise levels of construction equipment as measured at a distance of 50 feet from the operating equipment.

Table 2: Typical Construction Equipment Maximum Noise Levels, L_{max}

Type of Equipment	Impact Device? (Yes/No)	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Impact Pile Driver	Yes	95
Auger Drill Rig	No	85
Vibratory Pile Driver	No	95
Jackhammers	Yes	85
Pneumatic Tools	No	85
Pumps	No	77
Scrapers	No	85
Cranes	No	85
Portable Generators	No	82

Type of Equipment	Impact Device? (Yes/No)	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Rollers	No	85
Bulldozers	No	85
Tractors	No	84
Front-End Loaders	No	80
Backhoe	No	80
Excavators	No	85
Graders	No	85
Air Compressors	No	80
Dump Truck	No	84
Concrete Mixer Truck	No	85
Pickup Truck	No	55
Notes: dBA = A-weighted decibel Source: Federal Highway Administration (FHWA). 2006. Highway Construction Noise Handbook. August.		

2.1.5 - Noise from Multiple Sources

Because sound pressure levels in decibels are based on a logarithmic scale, they cannot be added or subtracted in the usual arithmetical way. Therefore, sound pressure levels in decibels are logarithmically added on an energy summation basis. In other words, adding a new noise source to an existing noise source, both producing noise at the same level, will not double the noise level. Instead, if the difference between two noise sources is 10 dBA or more, the louder noise source will dominate, and the resultant noise level will be equal to the noise level of the louder source. In general, if the difference between two noise sources is 0–1 dBA, the resultant noise level will be 3 dBA higher than the louder noise source, or both sources if they are equal. If the difference between two noise sources is 2-3 dBA, the resultant noise level will be 2 dBA above the louder noise source. If the difference between two noise sources is 4–10 dBA, the resultant noise level will be 1 dBA higher than the louder noise source.

2.2 - Characteristics of Groundborne Vibration and Noise

Groundborne vibration consists of rapidly fluctuating motion through a solid medium, specifically the ground, that has an average motion of zero and in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The effects of groundborne vibration typically only causes a nuisance to people, but in extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Although groundborne 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. Groundborne noise is an effect of groundborne 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.

Several different methods 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. Because of the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels—denoted as LV—and is based on the reference quantity of 1 microinch per second. To distinguish these vibration levels referenced in decibels from noise levels referenced in decibels, the unit is written as "VdB."

Although groundborne 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. When assessing annoyance from groundborne vibration, vibration is typically expressed as rms velocity in units of decibels of 1 microinch per second, with the unit written in VdB. Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower.

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 groundborne noise or vibration. Construction activities, such as blasting, pile driving and operating heavy earthmoving equipment, are common sources of groundborne vibration. Construction vibration impacts on building structures are generally assessed in terms of PPV. Typical vibration source levels from construction equipment are shown in Table 3.

Table 3: Vibration Levels of Construction Equipment

Construction Equipment	PPV at 25 feet (inches/second)	rms Velocity in Decibels (VdB) at 25 feet
Water Trucks	0.001	57
Scraper	0.002	58
Bulldozer—Small	0.003	58
Jackhammer	0.035	79
Concrete Mixer	0.046	81
Concrete Pump	0.046	81
Paver	0.046	81
Pickup Truck	0.046	81
Auger Drill Rig	0.051	82
Backhoe	0.051	82
Crane (Mobile)	0.051	82
Excavator	0.051	82
Grader	0.051	82
Loader	0.051	82
Loaded Trucks	0.076	86
Bulldozer—Large	0.089	87

Construction Equipment	PPV at 25 feet (inches/second)	rms Velocity in Decibels (VdB) at 25 feet
Caisson drilling	0.089	87
Vibratory Roller (small)	0.101	88
Compactor	0.138	90
Clam shovel drop	0.202	94
Vibratory Roller (large)	0.210	94
Pile Driver (impact-typical)	0.644	104
Pile Driver (impact-upper range)	1.518	112
Source: Compilation of scientific and academic literature, generated by the Federal Transit Administration (FTA) and Federal Highway Administration (FHWA).		

The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform medium, while groundborne vibrations travel through the earth, which may contain significant geological differences. Factors that influence groundborne vibration include:

- **Vibration source:** Type of activity or equipment, such as impact or mobile, and depth of vibration source;
- **Vibration path:** Soil type, rock layers, soil layering, depth to water table, and frost depth; and
- **Vibration receiver:** Foundation type, building construction, and acoustical absorption.

Among these factors that influence groundborne vibration, there are significant differences in the vibration characteristics when the source is underground compared to at the ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Vibration propagation is more efficient in stiff clay soils than in loose sandy soils, and shallow rock seems to concentrate the vibration energy close to the surface and can result in groundborne vibration problems at large distance from the source. Factors such as layering of the soil and depth to the water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils. 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 type, but it 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.

SECTION 3: REGULATORY SETTING

3.1 - Federal Regulations

3.1.1 - United States Environmental Protection Agency

In 1972, Congress enacted the Noise Control Act. This act authorized the United States Environmental Protection Agency (EPA) to publish descriptive data on the effects of noise and establish levels of sound "requisite to protect the public welfare with an adequate margin of safety." These levels are separated into health (hearing loss levels) and welfare (annoyance levels) categories, as shown in Table 4. The EPA cautions that these identified levels are not standards because they do not take into account the cost or feasibility of the levels.

For protection against hearing loss, 96 percent of the population would be protected if sound levels are less than or equal to an $L_{eq(24)}$ of 70 dBA. The EPA activity and interference guidelines are designed to ensure reliable speech communication at about 5 feet in the outdoor environment. For outdoor and indoor environments, interference with activity and annoyance should not occur if levels are below 55 dBA and 45 dBA, respectively.

Table 4: Summary of EPA Recommended Noise Levels to Protect Public Welfare

Effect	Level	Area
Hearing loss	$L_{eq(24)} \leq 70$ dB	All areas.
Outdoor activity interference and annoyance	$L_{dn} \leq 55$ dB	Outdoors in residential areas, farms, and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use.
	$L_{eq(24)} \leq 55$ dB	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	$L_{eq} \leq 45$ dB	Indoor residential areas.
	$L_{eq(24)} \leq 45$ dB	Other indoor areas with human activities such as schools, etc.

Notes:
dB = decibel
L_{eq} = equivalent continuous sound level
(24) signifies an L_{eq} duration of 24 hours.
Source: United States Environmental Protection Agency (EPA). 1978. Protective Noise Levels, EPA 550/9-79-100. November.

3.1.2 - Federal Transit Administration

Though not regulatory in nature, the FTA has established vibration impact criteria for buildings and other structures, as building and structural damages are generally the foremost concern when evaluating the impacts of construction-related vibrations. For the evaluation of the proposed project's construction-related vibration impacts, the following FTA vibration impact criteria shown in

Table 5 are used given the absence of applicable federal, State, and City standards specific to temporary construction activities.[2]

Table 5: Federal Transit Administration Construction Vibration Impact Criteria

Building Category	PPV (in/sec)	Approximate VdB
I. Reinforced—Concrete, Steel or Timber (no plaster)	0.5	102
II. Engineered Concrete and Masonry (no plaster)	0.3	98
III. Non-engineered Timber and Masonry Buildings	0.2	94
IV. Buildings Extremely Susceptible to Vibration Damage	0.12	90

Notes:
PPV = peak particle velocity
rms = root mean square
VdB = vibration measured as rms velocity in decibels of 1 microinch per second
Source: Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual.

3.2 - State Regulations

The State of California has established regulations that help prevent adverse impacts to occupants of buildings located near noise sources. Referred to as the "State Noise Insulation Standard," it requires buildings to meet performance standards through design and/or building materials that would offset any noise source in the vicinity of the receptor. State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are found in the California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Standards Code [CBC]), Appendix Chapters 12 and 12A. For limiting noise transmitted between adjacent dwelling units, the noise insulation standards specify the extent to which walls, doors, and floor-ceiling assemblies must block or absorb sound. For limiting noise from exterior noise sources, the noise insulation standards set an interior standard of 45 dBA CNEL in any habitable room with all doors and windows closed. In addition, the standards require preparation of an acoustical analysis demonstrating the manner in which dwelling units have been designed to meet this interior standard, where such units are proposed in an area with exterior noise levels greater than 60 dBA CNEL.

The proposed project does not include any type of residential development. Therefore, these standards are not applicable to the proposed project. However, the State has established land use compatibility guidelines for determining acceptable noise levels for specified land uses, including industrial type land uses such as the proposed project, which the City of Ontario has adopted as described below.

[2] Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual.

3.3 - Local Regulations

The project site is located within Ontario, California. The City of Ontario addresses noise in the Safety Element of the City's General Plan.[3]

3.3.1 - City of Ontario General Plan

The City's latest 2022 General Plan, "The Ontario Plan," aims to achieve an environment where noise does not adversely affect the public's health, safety, and welfare. Policies regarding noise would have limited applicability to the proposed project. Notwithstanding, they are reproduced below for reference:[4]

Policy S-4.1 Noise Mitigation

We utilize the City's Noise Ordinance, building codes, and subdivision and development codes to mitigate noise impacts.

Policy S-4.2 Coordination with Transportation Authorities

We collaborate with airport owners, FAA, Caltrans, SANBAG, SCAG, neighboring jurisdictions, and other transportation providers in preparation and maintenance of, and updates to transportation-related plans to minimize noise impacts and provide appropriate mitigation measures.

Policy S-4.3 Noise Mitigation

We utilize the City's Noise Ordinance, building codes, and subdivision and development codes to mitigate noise impacts. [Note: this policy appears to be an error, as it is the same as Policy S-4.1]

Policy S-4.4 Truck Traffic

We manage truck traffic to minimize noise impacts on sensitive land uses.

Policy S-4.5 Roadway Design

We design streets and highways to minimize noise impacts.

Policy S-4.6 Airport Noise Compatibility

We utilize information from Airport Land Use Compatibility Plans to prevent the construction of new noise-sensitive land uses within airport noise impact zones.

[3] City of Ontario. 2022. The Ontario Plan, Safety Element, S4 – Noise Hazards. Website: https://www.ontarioca.gov/about-ontario-ontario-plan-policy-plan/safety. Accessed October 7, 2022.

[4] Ibid.

Policy S-4.7 Rail Noise Mitigation.

We require residential and mixed use development of vibration-sensitive uses in areas within 200 feet of rail to evaluate for indoor vibration levels and mitigate any exceedances of the Federal Transit Administration vibration-annoyance criteria.

3.3.2 - City of Ontario Municipal Code

Chapter 29 of the Municipal Code contains a number of regulations that would apply to noise impacts related to the proposed project's temporary construction activities and long-term operations. The following is a discussion of regulations that would apply to the proposed project.

Municipal Code Sections 5-29.04 and 5-29.05 establish exterior and interior noise levels standards for designated "noise zones" in the City. Table 6 shows the exterior noise standards set forth by Municipal Code Section 5-29.04.

Table 6: Ontario Municipal Code Exterior Noise Standards

Noise Zone	Type of Land Use	Daytime (7:00 a.m. to 10:00 p.m.)		Nighttime (10:00 p.m. to 7:00 a.m.)	
		L_{eq}[2]	L_{max}[3]	L_{eq}[2]	L_{max}[3]
I	Single-Family Residential	65 dBA	85 dBA	45 dBA	65 dBA
II	Multi-Family Residential, Mobile Home Parks	65 dBA	85 dBA	50 dBA	70 dBA
III	Commercial Property	65 dBA	85 dBA	60 dBA	80 dBA
IV	Residential Portion of Mixed Use	70 dBA	90 dBA	70 dBA	90 dBA
V	Manufacturing and Industrial, Other Uses	70 dBA	90 dBA	70 dBA	90 dBA

Notes:
L_{eq} = equivalent continuous sound level
L_{max} = maximum noise level
1 Per Municipal Code Section 5-29.04(a)(1), if ambient noise levels at a land use exceed its applicable standard, then the ambient noise level shall be the standard.
2 Per Municipal Code Section 5-29.04(b)(1), the L_{eq} shall be averaged over a 15-minute period.
3 The L_{max} figures shown in this table are consistent with Municipal Code Section 5-29.04(b)(2), which establishes that "maximum instantaneous (single instance)" noise levels shall not exceed "the value of the noise standard plus twenty (20) dBA for any period of time . . . "
Source: City of Ontario. 2022. City of Ontario Municipal Code – Chapter 29: Noise, Section 5-29.04.

Table 7 shows the interior noise standards set forth by Section 5-29.05.

Table 7: Ontario Municipal Code Interior Noise Standards

Noise Zone	Type of Land Use	Daytime (7:00 a.m. to 10:00 p.m.)		Nighttime (10:00 p.m. to 7:00 a.m.)	
		L_{eq}[2]	L_{max}[3]	L_{eq}[2]	L_{max}[3]
I	Single-family Residential	45 dBA	65 dBA	40 dBA	60 dBA

Noise Zone	Type of Land Use	Daytime (7:00 a.m. to 10:00 p.m.)		Nighttime (10:00 p.m. to 7:00 a.m.)	
		L_{eq}[2]	L_{max}[3]	L_{eq}[2]	L_{max}[3]
II	Multi-family Residential, Mobile Home Parks	45 dBA	65 dBA	40 dBA	60 dBA
IV	Residential Portion of Mixed Use	45 dBA	65 dBA	40 dBA	60 dBA

Notes:
L_{eq} = equivalent continuous sound level
L_{max} = maximum noise level
[1] Per Section 5-29.05(a)(1), if ambient noise levels at a land use exceed its applicable standard, then the ambient noise level shall be the standard.
[2] Per Section 5-29.05(b)(1), the L_{eq} shall be averaged over a 15-minute period.
[3] The L_{max} figures shown in this table are consistent with Section 5-29.05(b)(2), which establishes that "maximum instantaneous (single instance)" noise levels shall not exceed "the value of the noise standard plus twenty (20) dBA for any period of time . . . "
Source: City of Ontario. 2022. City of Ontario Municipal Code – Chapter 29: Noise, Section 5-29.05.

Municipal Code Section 5-29.06 establishes activities that are exempted from the exterior and interior noise standards shown above. Particularly relevant to the proposed project is Municipal Code Section 5-29.06(d), which exempts noise sources associated with construction, repair, remodeling, demolition, or grading of any real property. Section 5-29.06(d) goes on to state that "such activities shall instead be subject to the provisions of Section 5-29.09."

Municipal Code Section 5-29.09, Construction Activity Noise Regulations, prohibits loud and disturbing noise from construction, remodeling, digging, grading, demolition, and related building activities before 7:00 a.m. and after 6:00 p.m. on weekdays. On Saturday and Sunday, such noise is prohibited before 9:00 a.m. and after 6:00 p.m. However, Section 5-29.09(c)(3) allows construction to occur outside these hours if it complies with the exterior and interior noise standards discussed above (see Table 6 and Table 7).

3.3.3 - Local Guidelines for Implementing the California Environmental Quality Act

Adopted in 2018, this City guidance document contains guidelines, definitions, and other instructions for how the City may accomplish its California Environmental Quality Act (CEQA) objectives. It does not contain any quantitative noise thresholds or other specific instructions that would apply to this noise analysis.[5]

3.3.4 - Ontario International Airport–Airport Land Use Compatibility Plan

The Ontario International Airport Land Use Compatibility Plan (ALUCP), updated in 2018, was adopted to promote compatibility between Ontario International Airport and the land uses that surround it, and provide guidance to affected local jurisdictions regarding airport land use compatibility matters involving ONT.

[5] City of Ontario. 2018. Local Guidelines for Implementing the California Environmental Quality Act.

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SECTION 4: EXISTING NOISE CONDITIONS

The project site is located in a heavily urbanized area in the City of Ontario, approximately 1 mile north of State Route (SR) 60 and approximately 0.64 mile east of SR-83. The project site is surrounded by South Bon View Avenue, educational facilities and a vacant lot to the east–southeast, and industrial warehouse buildings to the north, west, and south.

The site is surrounded by existing industrial development and roadways. The project site is located approximately 1.1 mile to the nearest runway of Ontario International Airport. Regional access to the site is available from SR-83 via the East Francis Street exit in addition to SR-60 at the South Grove Avenue exit. Local access to the site is available via South Bon View Avenue and South Campus Drive.

Traffic Noise

The dominant noise source in the immediate project vicinity is traffic noise on adjacent roadways. Existing traffic noise levels along selected roadway segments in the project vicinity were modeled using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The traffic volumes described here correspond to existing peak-hour traffic counts. The model inputs and outputs—including the 60 dBA, 65 dBA, and 70 dBA L_{dn} noise contour distances—are provided in Appendix A of this document. A summary of the modeling results is shown in Table 8. As is shown in Table 8, traffic noise levels range up to 68.9 dBA CNEL at 50-feet from the outermost travel lane on the roadway segment adjacent to the project site.

Table 8: Existing Traffic Noise Levels

Roadway Segment	Approximate ADT	Centerline to 70 CNEL (feet)	Centerline to 65 CNEL (feet)	Centerline to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane
Bon View Avenue–Francis Street to project driveway	4,500	< 50	107	229	68.6
Bon View Avenue–project driveway to Belmont Street	4,800	53	111	239	68.9

Notes:
ADT = Average Daily Traffic; this is based on the peak-hour turning volumes from the traffic study, multiplied by a factor of 10.
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibel
[1] Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather, they assume a worst-case scenario of having a direct line of site on flat terrain.
Source: FirstCarbon Solutions (FCS) 2022.

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SECTION 5: THRESHOLDS OF SIGNIFICANCE AND IMPACT ANALYSIS

5.1 - Thresholds of Significance

According to the CEQA Guidelines, Appendix G, to determine whether impacts related to noise and vibration are significant environmental effects, the following questions are analyzed and evaluated.

Would the proposed plan:

a) 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?

b) Generate excessive groundborne vibration or groundborne noise levels?

c) 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 2 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?

5.2 - Substantial Noise Increase in Excess of Standards

5.2.1 - Construction Noise Impacts

For purposes of this analysis, a significant impact would occur if construction activities would generate a substantial temporary increase in ambient noise levels in the project vicinity in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Neither the Municipal Code, the City's General Plan, nor the City's CEQA Guidelines contain quantitative noise standards that are specific or directly applicable to construction activities, though Municipal Code Section 5-29.09 would prohibit construction-related noises from occurring before 7:00 a.m. and after 6:00 p.m. on weekdays, or before 9:00 a.m. and after 6:00 p.m. on Saturday and Sunday. As discussed, Municipal Code Section 5-29.09 would conditionally allow construction-related noise during restricted time periods, provided that noise levels do not exceed the allowable exterior and interior standards established by Municipal Code Section 5-29.04 and 5-29.05 (see Table 6 and Table 7). During allowable construction hours, construction-related noises would be exempt from these exterior and interior standards. From a CEQA standpoint, this regulatory framework does not adequately meet the requirements of a threshold by which a determination of significance may be evaluated. As such, the following criteria to determine significance are informed by this regulatory framework, in addition to other considerations. The proposed project's construction noise impact would be considered significant if any of the following were to occur:

- Construction activities would take place before 7:00 a.m. or after 6:00 p.m. on weekdays, or before 9:00 a.m. and after 6:00 p.m. on Saturday and Sunday, and would generate noise levels in excess of Municipal Code Section 5-29.04 and Section 5-29.05 standards shown in Table 7 and Table 8; or

- Construction activities would generate noise increases of 5 dBA L_{eq} or more at noise-sensitive land uses. The averaging period shall be equivalent to the duration of a single workday, from start to finish of that day's construction activities.

Conservatively, this noise increase approximates a readily apparent increase in ambient noise levels. Neither the City's General Plan nor its CEQA Guidelines contain any guidance concerning the identification of noise-sensitive receptors. However, noise-sensitive receptors are generally considered to consist of land uses such as residences, schools, hospitals, churches, and similar locations where excess noise could reasonably pose a disruption, interference, or annoyance. For the proposed project, the nearest noise-sensitive receptors consist of residential land uses located along South Campus Avenue, approximately 700 feet west of the project site. The nearest other noise-sensitive receptors are two schools, Linda Vista Kindergarten School and De Anza Middle School, which are located approximately 2,000 feet west of the project site.[6]

Construction Equipment Operational Noise

Construction of the proposed project would generate noise during the approximately 12-month schedule of demolition, site preparation, grading, building construction, paving, and architectural coatings activities. The proposed project is anticipated to utilize a standard five-day work week, and construction would occur during standard daytime hours, which are generally between 7:00 a.m. and 5:00 p.m. Thus, pursuant to Municipal Code Section 5-29.09, noise levels associated with the proposed project's construction activities would be exempt from the exterior and interior noise standards set forth by Municipal Code Section 5-29.04 and Section 5-29.05 (shown in Table 6 and Table 7 above), and the proposed project's construction activities would not be in violation of any Municipal Code noise standards.

Noise from grading activities is typically the foremost concern when evaluating a project's construction noise impact, as grading activities often require extensive use of heavy-duty, diesel-powered earthmoving equipment. For the proposed project, grading would have the greatest—and noisiest—construction vehicle requirements, as a fleet of grading vehicles would be required to grade the 7-acre project site. Other construction phases would have reduced vehicle requirements. For example, building construction could at times require a crane truck, several construction forklifts, and skid steer loaders. These vehicles are much less powerful than the types of heavy-duty excavators, graders, and bulldozers that would be required to grade the project site. Given this consideration, the following analysis assesses noise impacts that may result from the proposed project's grading activities.

Grading for the proposed project is estimated to last approximately four weeks. The bulk of grading activities would be characterized by extensive use of a grader, excavator, and bulldozer vehicles. A grader would be utilized to level the site and establish proper slopes and drainages. An excavator would trench for utility connections and aid in the removal of any artificial fill material. A bulldozer may assist with all grading tasks. Ultimately, these vehicles would operate across the seven-acre project site from hour to hour and day to day. As this occurs, construction noise levels at surrounding sensitive receptors would fluctuate depending on these vehicles' distances from them. Noise levels

[6] A trade school located east of the proposed project site, across Bon View Avenue, would not be considered noise-sensitive.

would generally be greater when these vehicles are nearer to sensitive receptors and lower when they are positioned farther away. Notwithstanding this fact, the noise impact associated with the proposed project's grading activities has been evaluated by initially performing a conservative screening analysis in which a grader, excavator, and bulldozer are assumed to spend an entire workday operating at minimum project-to-receptor distances.

As noted earlier, the nearest noise-sensitive receptors to the proposed project are residential land uses located along South Campus Avenue, approximately 700 feet west of the project site. Based on the screening analysis described above, grading-related noise levels would not exceed 61 dBA L_{eq} at these residential land uses. As explained earlier, Municipal Code Section 5-29.04 and Section 5-29.05 exterior and interior noise standards would not apply to the proposed project's construction activities due to an exemption provided by Municipal Code Section 5-29.09. Notwithstanding, even if there were no exemption for the proposed project's construction activities, this 61 dBA L_{eq} noise level still would not exceed the 65 dBA L_{eq} Municipal Code Section 5-29.04 exterior noise standard for single- or multi-family residential land uses. It also would not lead to exceedances of the 45 dBA L_{eq} Municipal Code Section 5-29.05 interior noise standard for single- or multi-family residential land uses. Further, it is worth noting that Figure S-3a of the City's previous General Plan Safety Element indicates that noise levels surrounding these residential land uses likely range between 60 dBA CNEL and 70 dBA CNEL (the City's latest General Plan did not develop noise level contours). Thus, the proposed project's generation of a maximum 61 dBA L_{eq} construction-related noise level at these residential land uses reasonably would not be capable of resulting in noise increases greater than approximately 3 dBA, which correlates with a barely perceptible increase in noise. And as a reminder, this screening analysis evaluated a conservative "worst-case" construction scenario in which major earthmoving vehicles operate at the nearest project-to-receptor distance for an entire workday; in reality, construction-related noise levels at these residential land uses would be lower than 61 dBA L_{eq} because construction vehicles and activities would be spread across the 7-acre project site—not clustered at minimum project-to-receptor distances. Given these considerations, neither the absolute noise level nor the incremental noise increase associated with the proposed project's construction activities would be considered substantial at the nearest residential land uses along South Campus Avenue. As a result, this impact would be considered less than significant.

Linda Vista Kindergarten School and De Anza Middle School are two noise-sensitive school land uses that are located approximately 2,000 feet west of the proposed project. Given this distance, it is unlikely that on-site construction noises at the project site would be audible whatsoever at these receptors, let alone capable of contributing to substantial noise impacts.

Construction-related Traffic Noise

Haul trips, construction worker vehicle trips, and other construction-related trips would occur over the course of the proposed project's construction. The greatest off-site traffic noise impacts would be associated with haul trips generated by the proposed project's demolition and grading phases. These phases could involve the export of approximately 8,246 cubic yards of material. Material would consist of debris associated with the demolition of existing site uses and artificial fill that would be removed as part of the proposed project's grading phase. This could require approximately 2,209 haul trips over the course of the proposed project's demolition and grading phases, which are anticipated to last 40 workdays (i.e., 8 weeks). This corresponds with an average of approximately 55 haul trips per workday.

Driveway counts by Urban Crossroads determined that the project site's existing uses result in an average of 108 passenger car trips and 71 truck trips per day,[7] meaning that construction of the proposed project would result in a net reduction of truck trips associated with the site. Therefore, the proposed project's addition of haul trips to local roadways would not be capable of substantially increasing traffic noise levels associated with the site, much less substantially increasing roadside noise levels along nearby roadways (especially given the fact that the proposed project is located in an industrial area with relatively elevated existing volumes of truck traffic). Haul trucks would not utilize sensitive residential streets when accessing Mission Boulevard, Euclid Avenue, or other designated truck routes in the City. In this way, the proposed project would also be consistent with General Plan Policy S4-4, which concerns minimizing the noise impacts of truck traffic on sensitive land uses.

Generally, a doubling of traffic is required to increase roadway noise levels by 3 dBA, which corresponds with a barely perceptible noise increase. The proposed project's modest generation of construction vehicle trips would not come close to doubling traffic volumes along South Bon View Avenue or any other surrounding roadway and therefore would not be capable of generating perceptible increases in roadside ambient noise levels, let alone substantial increases. Based on driveway counts by Urban Crossroads, construction of the proposed project would result in a net reduction of passenger car and truck trips associated with the site. As a result, this impact would be considered less than significant.

5.2.2 - Off-site Mobile Source Operational Noise Impacts

For purposes of this analysis, a significant impact would occur if the proposed project's off-site mobile sources (i.e., vehicle traffic) would generate a substantial permanent increase in ambient noise levels surrounding the proposed project and any nearby roadways. The City's CEQA Guidelines does not contain quantitative noise standards that would be applicable to this issue. Municipal Code Section 5-29.04 and Section 5-29.05 establish "allowable" exterior and interior noise levels for a variety of land uses, but it is understood that the regulation of vehicle noise from public roadways is a matter preempted by State law (see Municipal Code § 5-29.06(h)). The effect of the proposed project's traffic on public roadways would not be subject to Municipal Code Section 5-29.04 and Section 5-29.05 standards. The City's current General Plan does not establish noise and land use compatibility guidelines for land uses. Therefore, the proposed project's mobile source operational noise impact would be considered significant if any of the following were to occur:

- Proposed project traffic would cause ambient noise levels at surrounding land uses to increase by 3 dBA CNEL or more; or
- Proposed project traffic would cause any 5 dBA $L_{eq\ 1\text{-hour}}$ or greater noise increase to a noise-sensitive receptor.

As a 3 dBA increase represents a barely perceptible change in noise level, this threshold considers any perceptible 24-hour increase in ambient noise levels to be significant. For instances when noise levels would not necessarily result in 24-hour increases of 3 dBA CNEL, a readily perceptible 5 dBA

7 Urban Crossroad. 2022. Bon View Warehouse Trip Generation Assessment and Scoping Memo. March.

L_{eq} increase would still be considered significant. Increases less than 3 dBA would not result in noticeably louder ambient noise conditions and therefore would be considered less than significant.

As noted earlier, a driveway count study conducted by Urban Crossroads determined that the project site's existing towing service generates an average 108 passenger car trips and 71 truck trips per day. Urban Crossroads also estimates that the proposed project would result in 186 passenger car trips and 104 truck trips per day. As explained earlier, a doubling of traffic is required to increase roadway noise levels by 3 dBA. Given that the proposed project would not double traffic associated with the site's existing use, it would not have the potential to double traffic on surrounding roadways and result in ambient noise level increases in excess of the minimum 3 dBA CNEL threshold of significance. As a result, this impact would be considered less than significant.

5.2.3 - On-Site Operational Noise Impacts

For purposes of this analysis, a significant impact would occur if the proposed project's on-site noise sources (i.e., parking lot operations, on-site truck loading, etc.) would generate a substantial permanent increase in ambient noise levels surrounding the proposed project and any nearby roadways. The City's CEQA Guidelines does not contain quantitative noise standards that would be applicable to this issue. Municipal Code Section 5-29.04 and Section 5-29.05 establish "allowable" exterior and interior noise levels for a variety of land uses. Operations of the proposed project would be subject to these noise standards, which are shown above in Table 6 and Table 7. The criteria below account for these noise standards. The following criteria to determine significance are informed by Municipal Code Section 5-29.04 and Section 5-29.05 "allowable" noise levels, in addition to other considerations. The proposed project's on-site operational noise impact would be considered significant if any of the following were to occur:

- The proposed project would cause ambient noise levels at surrounding land uses to increase by 3 dBA CNEL or more.
- The proposed project would cause any 5 dBA $L_{eq\ 1\text{-hour}}$ or greater noise increase to a noise-sensitive receptor.
- The proposed project would result in exceedances of the City's "allowable" exterior or interior noise levels for land uses, as defined in Municipal Code Section 5-29.04 and Section 5-29.05 and shown in Table 6 and Table 7.

As a 3 dBA increase represents a barely perceptible change in noise level, this threshold considers any perceptible increase in 24-hour ambient noise levels to be significant. For instances when noise levels would not necessarily result in 24-hour increases of 3 dBA CNEL, a readily perceptible 5 dBA L_{eq} increase would still be considered significant. Increases less than 3 dBA would not result in noticeably louder ambient noise conditions and therefore would be considered less than significant. Further, the threshold addresses whether the proposed project would result in exceedances of the Municipal Code's "allowable" exterior and interior noise standards.

The proposed project would generate noise from a variety of on-site noise sources, such as parking lot activities, new exterior mechanical equipment sources, and truck loading and unloading. Potential impacts from these noise sources are discussed below.

Parking Lot Activities

The proposed project would include 105 surface parking spaces. The proposed project's parking facilities and the intermittent noises associated with them (e.g., doors slamming, engines starting, etc.) would have a nominal effect on surrounding exterior noise levels. According to FTA equations for the prediction of parking facility noise impacts, a facility with an hourly activity of 25 passenger vehicles (equivalent to the proposed project's maximum hourly passenger vehicle trip generation) would be expected to result in a noise level of just 40 dBA L_{eq}.[8] This is well below surrounding ambient noise levels, and it suggests that the proposed project's parking facilities would have little to no effect on the area's 24-hour CNEL noise levels, which have been indicated to range between 60 dBA and 70 dBA. Parking-related noise levels would also be well below the City's 65 dBA L_{eq} daytime and 60 dBA L_{eq} nighttime ambient exterior noise standard for commercial uses, as well as the 70 dBA L_{eq} day and nighttime ambient exterior noise standard for manufacturing and industrial land uses. Impacts to more distant land uses, including the nearest noise-sensitive residential land uses that are approximately 700 feet away, would be negligible (if audible at all) and similarly below the City's ambient noise standards.

Parking lot activities also would not be expected to expose adjacent land uses to noises that are in excess of the City's instantaneous (i.e., L_{max}) noise standards, which are a minimum 80 dBA L_{max} for the proposed project's adjacent commercial, manufacturing, and industrial land uses. Car alarms or audible indicators may occasionally exceed this noise level, but these types of noise sources are ultimately exempt from the City's noise standards per Municipal Code Section 5-29.06(c), and their sporadic nature does not constitute a significant environmental effect.

Mechanical Equipment Operations

At the time of preparation of this analysis, details were not available pertaining to the proposed rooftop mechanical ventilation systems for the project; therefore, a reference noise level for typical rooftop mechanical ventilation systems was used. Noise levels from commercially available rooftop mechanical ventilation equipment range from 50 dBA to 60 dBA L_{eq} at a distance of 25 feet. This is below surrounding ambient noise levels, and it suggests that the proposed project's rooftop mechanical ventilation systems would have a minimal effect on the area's 24-hour CNEL noise levels, which have been indicated to range between 60 dBA and 70 dBA. And because the proposed project's rooftop mechanical ventilation equipment would be located no less than 40 feet from adjacent land uses and behind parapets or screened, noise levels from this equipment would reasonably be less than 60 dBA L_{eq} at adjacent land uses. Thus, there is no potential for this equipment to expose adjacent land uses to noise levels in excess of the City's exterior noise standards for commercial, manufacturing, or industrial uses, which are a minimum 60 dBA L_{eq}. Impacts to more distant land uses, including the nearest noise-sensitive residential land uses that are

[8] Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual.

approximately 700 feet away, would be negligible (if audible at all) and similarly below the City's noise standards.

Instantaneous L_{max} noise levels from the proposed project's rooftop mechanical ventilation equipment would not be substantially greater than their 50 dBA to 60 dBA L_{eq} noise levels and would not result in exceedances of the City's instantaneous noise level standards for surrounding land uses.

Truck Loading Activities

Noise would be also generated by truck loading and unloading activities at the proposed surface level loading areas that are located on the south of the proposed warehouse building. There are 18 dock doors for truck loading and unloading at this location, which is near neighboring industrial land uses to the west and south. Urban Crossroads estimates that the proposed project would result in 104 truck trips per day. As the proposed project would have 24-hour operations, this correlates with approximately 4-5 truck trips per hour; thus, truck loading activity would correspond with roughly five trucks per hour on average. Typical maximum noise levels from truck loading and unloading activity are 70 dBA L_{max} at a reference distance of 50 feet. As neighboring industrial uses are over 50 feet from the proposed project's dock door loading areas, they would not be exposed to noise levels in excess of 70 dBA. Therefore, the proposed project would not expose neighboring industrial land uses to exterior noise levels in excess of Municipal Code Section 5-29.05 standards, which are 70 dBA L_{eq} and 90 dBA L_{max} for industrial land uses. Other surrounding land uses would be located hundreds of feet from the proposed project's dock doors for truck loading, and the proposed project's own massing would shield these uses from this area. As a result, truck loading activities would have no potential to expose other neighboring uses to noise levels in excess of their respective Municipal Code standards. At the nearest noise-sensitive receptors—residential land uses approximately 700 feet west of the proposed project—truck loading noises would be negligible.

Combined Stationary Source Noise Levels

None of the proposed project's operational features would be individually or cumulatively capable of exposing neighboring industrial land uses to noise levels in excess of 70 dBA L_{eq} or 90 dBA L_{max}. The nearest properties across Bon View Avenue would be located hundreds of feet from the proposed project's primary sources of operational noise (i.e., truck loading) and would also not be exposed to noise levels in excess of Municipal Code standards. Impacts to distant noise-sensitive residential land uses would be negligible and well below Municipal Code standards.

Regarding 24-hour noise levels (i.e., CNEL), the proposed project is located in a mixed industrial/commercial neighborhood with many similar existing land uses and accompanying noise sources. To the proposed project's north, east, and south are a multitude of similar warehousing land uses, and given the number of trucks at these uses, it is likely that many have a far greater level of truck activity than the proposed project would. In order to cause a minimum 3 dBA CNEL increase in noise levels, the proposed project would have to double existing sources of noise in the area. Given the prevalence of similar industrial land uses in the vicinity of the proposed project, the proposed project reasonably would not be capable of single-handedly causing such a noise increase. Ultimately, the proposed project would be surrounded by similar warehouse uses that produce similar noise levels from similar noise sources, and the proposed project would itself replace an existing industrial use. Given these considerations, the proposed project would not result in substantial noise increases at surrounding uses, nor would it result in exceedances of Municipal Code noise standards for these uses. 24-hour noise increases at the nearest residential land uses, which are approximately 700 feet west of the proposed project, would be minimal.

As stated above, the proposed project's on-site operational noise sources would not generate a substantial temporary or permanent increase in ambient noise levels at surrounding land uses, nor would they expose surrounding land uses to noise levels in excess of Municipal Code standards. As a result, this impact would be less than significant.

5.3 - Groundborne Vibration/Noise Levels

There are no federal or State standards that would regulate the proposed project's vibration impacts from temporary construction activities or operations, nor are there quantitative thresholds. Additionally, the City of Ontario also has not established quantitative groundborne vibration thresholds for construction or operation. Therefore, the criteria identified by the FTA in its 2018 Transit Noise and Vibration Impact Assessment document are used where applicable and relevant to assist in evaluating the proposed project's vibration impacts. The construction vibration impact criteria are summarized in Table 5.

Based on a review of surrounding structures, there are no "buildings extremely susceptible to vibration damage" or "non-engineered timber and masonry buildings" in the vicinity of the proposed project site. As such, the following analysis evaluates the proposed project's potential to expose surrounding structures to groundborne vibration levels in excess of 0.3 inch per second PPV or 0.5 inch per second PPV, which are the FTA's vibration impact criteria for "Engineered Concrete and Masonry" buildings and "Reinforced-Concrete, Steel or Timber" buildings (respectively).

5.3.1 - Short-term Construction Vibration Impacts

Construction of the proposed project would require a variety of large, steel-tracked earthmoving vehicles. According to the FTA, large bulldozers and similar heavy-equipment can generate groundborne vibration levels up to 0.089 inch per second PPV at a reference distance of 25 feet. Groundborne vibration levels up to the FTA's 0.3 inch per second PPV criteria for "Engineered Concrete and Masonry" buildings may be generated within approximately nine feet of these vehicles' activities. Levels up to the FTA's 0.5 inch per second PPV criteria for "Reinforced-Concrete, Steel, or Timber" buildings may be generated within approximately 6 feet of these vehicles' activities.

As noted earlier, grading for the proposed project would require a grader, an excavator, a bulldozer, and other earthmoving vehicles. Bulldozers, as well as graders and excavators, may generate groundborne vibration levels that are up to the FTA's 0.089 inch per second PPV at 25 feet figure. This could expose nearby structures to groundborne vibrations caused by these vehicles' construction activities. Two structures directly (or very nearly) about the proposed project site: an industrial building at 1512 South Bon View Avenue (north of the project site) and an industrial building at 1520 South Bon View Avenue (south of the project site). The FTA's 0.5 inch per second PPV criteria would apply to both of these industrial buildings. Despite their proximity to the proposed project site, these buildings would not be expected to experience groundborne vibration levels in excess of the 0.5 inch per second PPV criteria, because the types of large earthmoving vehicles capable of generating exceedances of this criteria would not operate at such a minimal setback from these buildings. First, the positioning of these large vehicles requires a certain degree of setback in order to preserve their maneuverability. The fact that these buildings are within a couple feet of the project site does not mean that large earthmoving vehicles would operate within a couple feet of these industrial buildings. Second, the nearest trenching for underground utilities and facilities would be located no closer than 10 feet to these structures. Given these considerations, the proposed project's construction activities would not be expected to expose these industrial structures to groundborne vibration levels in excess their 0.5 inch per second PPV criteria.

A structure at 1512 South Bon View Avenue is located approximately 10 feet or greater from the proposed project. The FTA's 0.3 inch per second PPV criteria would apply to this masonry building. Since this building is located over 9 feet from the proposed project, it would not experience groundborne vibration levels in excess of 0.3 inch per second PPV criteria as a result of the proposed project's construction activities.

Other buildings are located farther from the proposed project and would experience reduced groundborne vibrations levels that are also below FTA vibration impact criteria. Because construction of the proposed project would not result in the generation of groundborne vibration levels at nearby structures that are in excess of their applicable FTA vibration impact criteria, this impact would be considered less than significant.

5.3.2 - Operational Vibration Impacts

While it is possible that groundborne vibrations may be generated by the on-site equipment of the proposed project's future warehousing tenant(s), it is unrealistic to assume that any groundborne vibration would be potentially damaging or even perceptible at nearby land uses, which are located over 50 feet from the project's proposed warehouse building. Additionally, the proposed project's related vehicle travel would not be considered a significant source of groundborne vibration, as vehicle travel rarely generates perceptible groundborne vibrations. As a result, the proposed project's potential to generate excessive groundborne vibration levels due to operations would be less than significant.

5.4 - Excessive Noise Levels from Airport Activity

A significant impact would occur if the proposed project would expose people residing or working in the project area to excessive noise levels for a project located in the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport.

The project site is located approximately 1 mile southwest of the Ontario International Airport. According to the airport's noise exposure map, the project site is located inside of the 65 to 70 dBA CNEL airport noise contours.[9] The proposed project is not a noise-sensitive land use; its development at the project site would not present a land use and noise compatibility issue, and no impact would occur.

[9] Ontario Airport Planning. 2018. Ontario International Airport Land Use Compatibility Plan–Compatibility Policy Map–Noise Impact Zones. Website: https://www.ont-iac.com/wp-content/uploads/2019/02/ONT-AIA-policy-map-2-3rev2-1.pdf. Accessed July 5, 2022.

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Appendix A:
Noise Monitoring and Modeling Data

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TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/26/2022
ROADWAY SEGMENT: Bon View Avenue - Francis Street to project driveway
NOTES: Bon View Logistics - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	69.50	12.90	9.60
M-TRUCKS	1.44	0.06	1.50
H-TRUCKS	2.40	0.10	2.50

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	106.8	228.9	492.6

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 07/26/2022
ROADWAY SEGMENT: Bon View Avenue - project driveway to Belmont Street
NOTES: Bon View Logistics - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	69.50	12.90	9.60
M-TRUCKS	1.44	0.06	1.50
H-TRUCKS	2.40	0.10	2.50

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
52.8	111.4	238.9	514.1
