

APPENDIX B – NOISE IMPACT ANALYSIS

**CALIFORNIA WAREHOUSE DEVELOPMENT
2601 SOUTH CALIFORNIA AVENUE
MONROVIA, CALIFORNIA 91016**



**LEAD AGENCY:
CITY OF MONROVIA
COMMUNITY DEVELOPMENT DEPARTMENT, PLANNING DIVISION
415 SOUTH IVY AVENUE
MONROVIA, CALIFORNIA 91016**

**REPORT PREPARED BY:
BLODGETT BAYLOSIS ENVIRONMENTAL PLANNING
2211 S. HACIENDA BOULEVARD, SUITE 107
HACIENDA HEIGHTS, CALIFORNIA 91745**

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ATTACHMENTS

Attachment A – Noise Measurements

1. INTRODUCTION AND SUMMARY

This Noise Analysis Study evaluates the noise and vibration impacts associated with the construction and subsequent operation of a 27,078 square-foot warehouse building (2,146 square feet of office and 24,932 square feet of warehousing) with related parking and site improvements on a 61,508 square foot (1.41 gross acres) site. A total of 33 parking stalls and three truck loading docks would also be provided. This Noise report is intended for use by the City of Monrovia, in its capacity as Lead Agency for the proposed Project, to assess the potential noise impacts of the proposed Project in compliance with the California Environmental Quality Act (CEQA; PRC §21000 et seq.) and the State CEQA Guidelines (14 CCR §15000 et seq.). This report consists of the following elements:

- *Section 1, Introduction* describes the scope and format of this report and its intended use.
- *Section 2, Project Location and Setting* describes the proposed Project's location and its environmental setting.
- *Section 3, Project Description* provides an overview of the construction and operational characteristics of the proposed Project.
- *Section 4, Noise and Vibration Characteristics and Regulatory Setting* describes the physics of noise and vibration along with the regulatory framework.
- *Section 5, Significance Criteria* describes the thresholds for which a project would result in significant impacts on noise or vibration.
- *Section 6, Existing Ambient Noise Environment* characterizes the existing noise environment within and around the Project site.
- *Section 7, Construction (Short-term) Noise and Vibration Impacts* describes the noise and vibration impacts related to the proposed Project's construction.
- *Section 8, Operational (Long-term) Noise and Vibration Impacts* describes the noise and vibration impacts related to the proposed Project's operation.
- *Section 9, Recommended Mitigation Measures* identifies mitigation measures to reduce potential significant impacts to less than significant levels.
- *Section 10, Sources* lists the references used in the preparation of this report.

According to Appendix G of the CEQA Guidelines, a Project may be deemed to have a significant adverse impact on noise if it results in any of the following:

- The proposed Project would 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;
- The proposed Project would result in the generation of excessive ground-borne vibration or ground-borne noise levels; or,
- For a proposed 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.

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The noise analysis study evaluates the noise and vibration impacts associated with the construction and subsequent operation of a 27,078 square-foot warehouse building (2,146 square feet of office and 24,932 square feet of warehousing) with related parking and site improvements on a 61,508 square foot (1.41 gross acres) site. A total of 33 parking stalls and three truck loading docks would also be provided. The property is located in the *Planned Development – Area 19 (Novice Lane Area)* General Plan designation and is zoned *PD-19 (Planned Development – Area 19)*. The new building would be used for warehouse and office purposes. The site's Assessor Parcel Numbers (APNs) are 8534-016-045, 8534-016-046, and 8534-016-047. The site's primary address is 2601 California Avenue, Monrovia, California 91016. Other addresses associated with the Project site include 213 and 217 Novice Lane. The site plan for the proposed Project is shown in Exhibit 1. The results of this noise analysis study are summarized below:

- The site was formerly occupied by an automotive repair business (Don's Automotive) and two single-family residential units that have all been demolished. The site is currently undeveloped and covered in ruderal vegetation and broken hardscape. The site is currently secured by a chain link (construction) fence along the south and east sides. A concrete block wall extends along the site's north and west sides, separating the existing vacant site from the adjacent homes to the north and west.
- The new building would be located in the north central portion of the site while parking and the truck maneuvering area would be located in the southerly and westerly portions of the site. The new building would be setback 20 feet from the northern residential property line, 61 feet from the western residential property line, 56 feet from the southern property line, and 10 feet from the eastern property line fronting on California Avenue.
- A total of three truck loading docks would be located on-site. Two, 9' x 10' docks, would be located in a recess in the building along the building's south elevation and a third, 12' x 14' dock, would be located adjacent to parking on the south elevation. The larger truck and trailers (with trailers up to 53 feet in length) would use the recessed dock-high doors. The larger 12' x 14' dock is a grade level sliding door. Shorter box trucks (16 foot to 24 foot with a capacity of up to 10,000 pounds) would use the grade level opening (larger tractor trailer trucks would not be permitted to use this grade level loading position).
- The proposed project is anticipated to be primarily open for business during typical business hours (8:00 am to 5:00 pm). No operations would occur between 12:00 am to 6:00 am. In the event night-time work activities might take place (after 5:00 pm), all work would occur inside the new building and all activities would be required to adhere to all pertinent Municipal Code requirements. No late night truck deliveries (after 12:00 am or before 6:00 am) would be permitted.
- The most commonly used unit for measuring the level of sound is the decibel (dB). Zero on the decibel scale represents the lowest limit of sound that can be heard by humans. At the other extreme, the eardrum may rupture at 140 dB. The human ear can detect changes in sound levels greater than 3.0 dBA under normal ambient conditions. Changes of less than 3.0 dB are noticeable to some people under quiet conditions while changes of less than 1.0 dB are only discernible by few people under controlled, extremely quiet conditions. In general, an increase of between 3.0 dB and 5.0 dB in the ambient noise level is considered to represent the threshold for human sensitivity.
- The City of Monrovia has adopted a Noise Element of the General Plan to control and abate environmental noise and to protect the citizens of the City of Monrovia from excessive exposure to noise. The Noise Element identifies the City of Monrovia policy on allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise Element identifies a noise control plan to minimize

the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses.

- Monrovia Municipal Code (MMC) Chapter 9.44 (Noise), provides noise guidelines and standards in the City. The City does not impose noise limits for temporary construction activities at surrounding noise sensitive property lines. However, permitted construction hours and other noise restrictions are established in MMC § 9.44.080.
- Four sets of 100 noise measurements were taken: two along the project site's eastern property line adjacent to California Avenue, a third inside the site's interior along the west property line, and one inside the southwest corner of the site (refer to Exhibit 7). A Sper Scientific Digital Sound Meter was used to conduct the noise measurements. The measurements were captured five feet above the ground surface at a location free from any obstructions. The existing ambient noise measurements are included in Attachment A – Noise Measurements. The ambient median noise levels for the first three locations are below the ambient median threshold for the City of Monrovia (55 dBA); however the fourth location exceeds the threshold by 2.8 dBA. The average noise measurements ranged from 51.1 dBA to 57.6 dBA during the measurement period. The ambient median noise levels at all four locations exceed the County of Los Angeles ambient threshold of 50 dBA. Accordingly, the analysis evaluates whether construction and operational noise would result in a substantial increase over existing ambient conditions at each representative location.
- If the Project-related construction noise levels generate a temporary noise level increase above the existing ambient noise levels of up to 12 dBA L_{eq} , then the Project construction noise level increases will be considered a potentially significant impact. However, since an increase of 12 dBA could result in noise levels over 85 dBA L_{eq} , which the California Occupational Safety and Health Administration (CalOSHA) identifies as a potentially hazardous noise level, the increase should not be allowed to result in an absolute noise level greater than 80 dBA L_{eq} at any residence, which is consistent with the FTA recommendations. Unmitigated short-term maximum noise levels at distances of 25 or 50 feet could exceed FTA guidance levels and Los Angeles County L_{max} thresholds for individual pieces of equipment. However, the Project would implement Mitigation Measure NOI-1, which requires installation of temporary acoustic barriers or noise blankets, achieving a minimum 5 dBA reduction, thereby reducing these short-term noise levels.
- Construction noise would be temporary, intermittent, and would vary by construction phase, receptor distance, and the location of active equipment. The highest short-term noise impacts would generally occur during grading and site preparation, when earthmoving machinery like excavators and bulldozers operate. Typical operating patterns for this equipment often consist of brief bursts of high power (1 to 2 minutes) followed by longer periods at reduced power (3 to 4 minutes). Construction equipment would move throughout the site over the approximately nine-month construction period and would generally operate more than 50 feet from adjacent property lines due to site layout and setbacks. Noise levels would attenuate with distance and fluctuate as construction activities shift across the site. Overall, noise impacts at any nearby receptor would be temporary and would cease upon completion of construction.
- Stationary noise sources associated with the Project could include heating, ventilation, and air conditioning (HVAC) mechanical equipment, truck delivery loading/unloading activities, and typical motor vehicle/parking area activities. In order to assess permanent noise levels from on-going activities on-site, a reference noise level measurement for loading dock activities was collected to represent the truck idling/reefer activity at a neighboring receiving dock next to the offices of Blodgett Baylosis Environmental Planning. During the measurement period, the recorded noise levels were 65.2 dBA at a uniform distance of 50 feet. The distance between the

receiving area and the homes would be at least 127 feet with no direct line of sight. As a result, the new building will attenuate the loading dock noise impacts on the existing homes. Additionally, the two primary truck receiving areas are located within a recessed loading area located along the building's south elevation, separated from the homes to the north of the site by the proposed 33-foot-high building. Moreover, the new Project's hours of operation will be limited so that after hours operations do not affect the noise sensitive receptors in the area (see Mitigation Measures NOI-6 and 7). Adherence with Mitigation Measure NOI-8 would further ensure that the proposed Project would not substantially increase noise levels over existing conditions and impacts to adjacent sensitive receptors would be less than significant with mitigation incorporated.

- According to the City's Noise Element, the existing 60 dBA CNEL contour along California Avenue (Duarte Road to the Southern City limit) extends approximately 129 feet from the roadway centerline, and the 55 dBA CNEL contour extends 383 feet. Along Myrtle Avenue the 70 dBA CNEL 65 dBA, 60 dBA, and 55 dBA CNEL contours extend 65, 170, 490, and 1,291 feet, respectively, based on existing ADT volumes. The Project site would fall within the 60 dBA noise contour on these roadways. The area within this contour represents areas of equal noise exposure and represents an existing noise level to compare to. Given the minimal traffic contribution from project operations, the proposed development would not cause a measurable increase in existing traffic noise levels and would therefore result in a less than significant impact.
- Future proposed land uses within the Project would not be anticipated to generate significant levels of vibration since the proposed Project involves the development of a warehouse. The primary source of ground borne vibration would be vehicle traffic on the internal drive aisle and adjacent streets. A fully loaded truck traveling on the drive aisle would generate 0.076 PPV at 25 feet which would be below the 0.2 PPV threshold and would be considered barely perceptible and would have no effect on the building according to Table 9. It is important to note, truck travel would be intermittent and nine trucks are expected per day.
- The Project site is not located within two miles of an airport or airstrip. The nearest airport is the San Gabriel Airport located approximately 2.45 miles southwest of the Project site, and the nearest major airport is the Burbank Airport located roughly 16 miles west of the Project site. Thus, the Project would not be exposed to excessive noise levels from airport operations, and therefore, there are no impacts, and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

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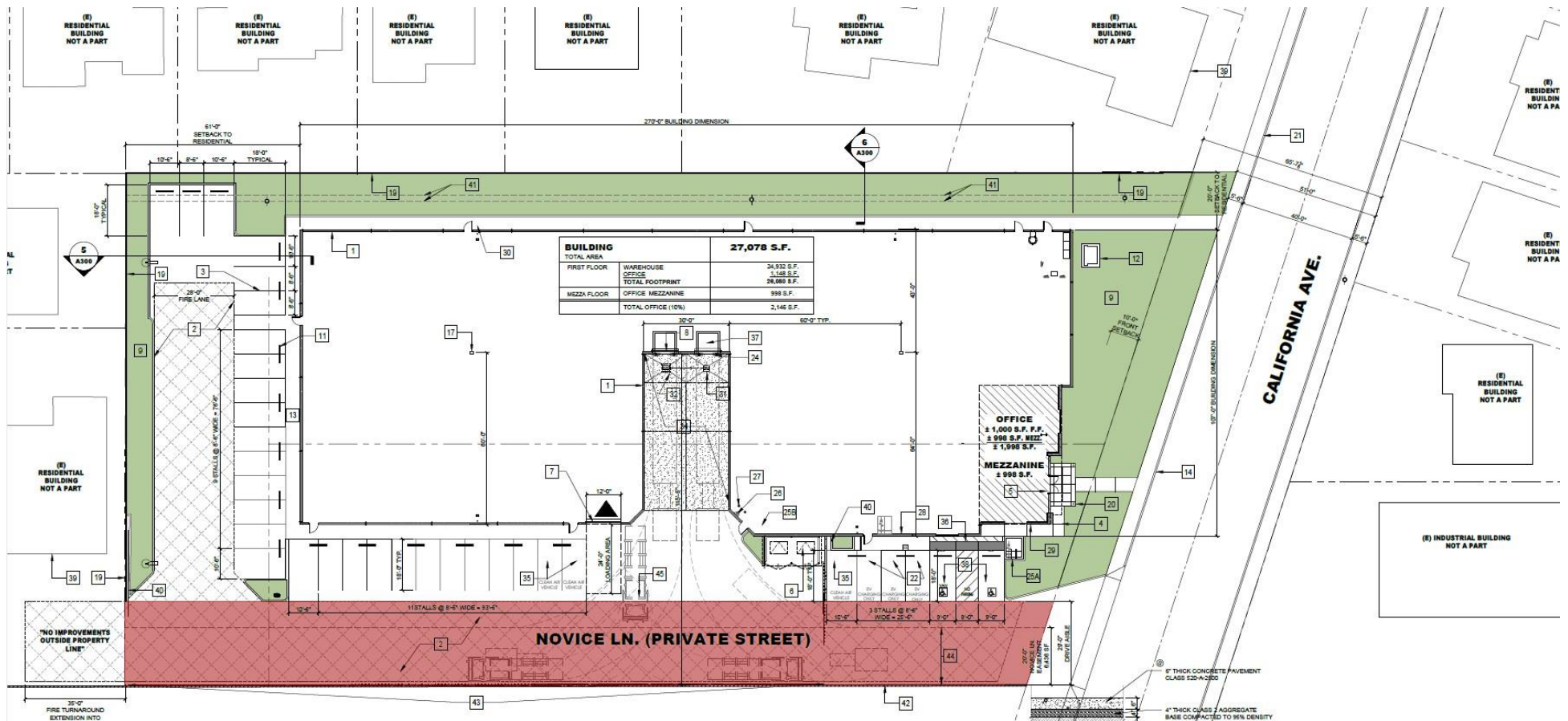


EXHIBIT 1 PROJECT SITE PLAN

SOURCE: C.E.G. CONSTRUCTION

2. PROJECT LOCATION AND SETTING

The Project is located within an urbanized area of the southern portion of the City of Monrovia. The Project site's primary legal address is 2601 South California Avenue. Other addresses associated with the Project site include 213 and 217 Novice Lane. The Project site's location is shown in Exhibit 2.

The site was formerly occupied by an automotive repair business (Don's Automotive) and two single-family residential units that have all been demolished. The site is currently undeveloped and covered in ruderal vegetation and broken hardscape. The site is currently secured by a chain link (construction) fence along the south and east sides. A concrete block wall extends along the site's north and west sides, separating the existing vacant site from the adjacent homes to the north and west. Existing land uses and development found in the vicinity of the project site are summarized below¹²:

- *North of the Project site.* A total of six single-family residential units are located adjacent to the Project site and just outside of the City's boundaries in unincorporated Los Angeles County (referred to as the South Monrovia Islands). The addresses of these residential units are 208 Wyland Way, 214 Wyland Way, 220 Wyland Way, 226 Wyland Way, 232 Wyland Way, and 2547 California Avenue. These properties are designated as *Residential 9 (H9)* in the Los Angeles County General Plan and are zoned for single-family residential development in Los Angeles County's *R-1 (Residential)* zoning district. These homes are the nearest noise sensitive receptors to the Project site.
- *South of the Project site.* To the south of the site at 2640 – 2670 South Myrtle Avenue is a commercial and manufacturing use, Dootson Industrial Park. This property is designated as *Manufacturing* in the Monrovia General Plan and zoned as *M (Manufacturing)*. Approximately 300 feet south of the Project site in Irwindale is the Sawpit Wash, a concrete-lined flood control channel, which extends in a northeast-southwest orientation. The United Plant Quarry is located further southeast of the Project site, south of the aforementioned flood control channel.
- *East of the Project site.* To the east of the site is California Avenue and a single-family residential neighborhood within unincorporated Los Angeles County. The properties are designated as *Residential 9 (H9)* in the Los Angeles County General Plan and within Los Angeles County's *R-1 (Residential)* zoning district and improved with single-family residences. South of this single-family residential neighborhood at 2600 – 2620 South California Avenue is an industrial use, California Suites. The site is located within the City boundaries and is designated as *Manufacturing* in the Monrovia General Plan and zoned as *M (Manufacturing)*. These homes are also sensitive receptors.
- *West of the Project site.* Three single-family residential properties are located directly to the west of the Project site. The addresses of these units are 2568 S. Myrtle Avenue, 203 Novice Lane, and 209 Novice Lane. The two units located on Novice Lane have frontage along the private street Novice Lane. These properties are designated as *Planned Development – Area 19 (Novice Lane Area)* in the Monrovia General Plan and are zoned as *PD-19 (Planned Development – Area 19)*. These homes are also sensitive receptors.

¹ City of Monrovia. *Interactive Zoning Map*. Available at:
<https://www.monroviaca.gov/home/showpublisheddocument/8735/637628941263870000>

² Los Angeles County. Planning and Zoning Information for Unincorporated L.A. County.
https://rpgis.isd.lacounty.gov/Html5Viewer/index.html?viewer=GISNET_Public.GIS-NET_Public

The environmental setting of the Project site and the surrounding properties is summarized in Table 1.

TABLE 1 – ENVIRONMENTAL SETTING SUMMARY TABLE

Location	Land Use	General Plan	Zoning
Project Site	Vacant	Monrovia: Planned Development – Area 19 (Novice Lane Area)	Monrovia: PD-19 (Planned Development – Area 19)
North of Project Site	Single-Family Residential Noise sensitive receptors	County: H9 (Residential 9)	County: R-1 (Single-Family Residence)
East of Project Site	Single-Family Residential and Manufacturing	County: H9 (Residential 9) Monrovia: Manufacturing	County: R-1 (Single-Family Residence) Monrovia: M (Manufacturing)
South of Project Site	Manufacturing and Commercial	Monrovia: Manufacturing	Monrovia: M (Manufacturing)
West of Project Site	Single-Family Residential Noise sensitive receptors	Monrovia: Planned Development – Area 19 (Novice Lane Area)	Monrovia: PD-19 (Planned Development – Area 19)

Sources: Los Angeles County Office of the Assessor. *Property Assessment Information System*.
City of Monrovia. *Zoning Map*; LA County Zoning Map

3. PROJECT DESCRIPTION

The proposed Project involves the construction of a 27,078 square-foot warehouse building that would include 2,146 square feet of office and 24,932 square feet of warehousing along with related parking and site improvements on a 61,508 square foot (1.41 gross acres) undeveloped lot³. The first floor would consist of 24,932 square feet of warehouse space and 1,148 square feet of office space located in the eastern side of the building. The total floor area of the first floor would be 26,080 square feet. The mezzanine would consist of a 998 square-foot mezzanine style office space located on the eastern side of the building above the first floor office space.

The new building would be located in the north central portion of the site while parking and the truck maneuvering area would be located in the southerly and westerly portions of the site. The new building would be setback 20 feet from the northern residential property line, 61 feet from the western residential property line, 56 feet from the southern property line, and 10 feet from the eastern property line fronting on California Avenue. The maximum height of the new building would be approximately 33 feet. The new building would be fully sprinkled and would consist of Type III-B tilt-up concrete construction. The building exterior elevations would consist of recessed panels with colored accents.

Uncovered parking spaces would be provided on surface areas located on the south and western sides of the project site. The proposed warehouse project, with approval of a Conditional Use Permit to utilize a lower parking requirement, would include a total of 33 parking stalls. The project would provide 25 standard stalls, two (2) ADA stalls, three (3) clean air vehicle stalls, and three (3) electric vehicle stalls. A total of four (4) bicycle spaces would be provided: two (2) long-term bike spaces located inside the building and two (2) short-term bike spaces located outside the building.

A total of three truck loading docks would be located on-site. Two, 9' x 10' docks, would be located in a recess in the building along the building's south elevation and a third, 12' x 14' dock, would be located adjacent to parking on the south elevation. The larger truck and trailers (with trailers up to 53 feet in length)

³ C.E.G. Construction. *Site Plan Sheet A100: California Industrial, 2601 California Avenue, Monrovia, California*. May 2025.

would use the recessed dock-high doors. The larger 12' x 14' dock is a grade level sliding door. Shorter box trucks (16 foot to 24 foot with a capacity of up to 10,000 pounds) would use the grade level opening (larger tractor trailer trucks would not be permitted to use this grade level loading position). The dimensions of the parking area in front of the sliding door would be approximately 20 feet by 10 feet. Two wrought-iron sliding gates would be installed to prevent through traffic between Myrtle Avenue and the site: one across Novice Lane at the west property line and another across the driveway on the east. A "Knox-box" would be provided at the gates to allow the Fire Department and other emergency services to access the site from Myrtle Avenue across Novice Lane. Additionally, a fire turnaround would be located on a 35-foot section of Novice Lane on the abutting parcel (APN 8534-016-048), where the subject property has a recorded ingress and egress easement.⁴

Vehicle access to the project site would be provided from California Avenue through a new, single 29-foot wide two-way driveway utilizing the existing ingress egress easement (Novice Lane) along the southern portion of the project site. In addition, the driveway utilizing Novice Lane would serve as a fire lane, truck access, and vehicular access to the parking areas. A 35-foot fire turnaround extension of this fire lane would be located on the ingress/egress easement on the abutting property (APN 8534-016-048) to the west. All warehouse use related truck maneuvering would occur on-site in an area located to the south of the loading docks. The main pedestrian access to the building would be provided on the eastern side of the building. Additional access doors are provided on the north, south, and west of the building. The site plan for the proposed project is shown in Exhibit 1.

The proposed project's tenant is not known at this time though the project applicant is limiting the use of the property and future improvements to warehouse uses only; no industrial uses, light or heavy, would be permitted. The Applicant is envisioning a smaller warehouse development that would be local serving. No heavy manufacturing, intensive distribution, or processing activities are envisioned given the building's small floor area (27,078 square feet) and the limited number of truck loading docks (three loading docks). There would be no retailing and commercial functions, including customer related actions. As a result, any future use would be required to conform to these limitations on warehouse uses. This facility would employ approximately 20 employees assuming one employee for every 1,366 square feet of floor area.⁵

The proposed project is anticipated to be primarily open for business during typical business hours (8:00 am to 5:00 pm). No operations would occur between 12:00 am to 6:00 am. In the event night-time work activities might take place (after 5:00 pm), all work would occur inside the new building and all activities would be required to adhere to all pertinent Municipal Code requirements. No late night truck deliveries (after 12:00 am or before 6:00 am) would be permitted.

⁴ Deed to the City of Los Angeles. Document Number 20210578349 Exhibit A. October 4, 1949. Recorded in Los Angeles County. Exhibit A identifies Parcel 3a as "an easement for ingress and egress in common with others, over the South 20.00 feet of the North 142.22 feet of that portion of Lot 5 of I. H. Polk Tract, in the City of Monrovia, County of Los Angeles, State of California, as per map recorded in Book 15 Page 17 of Maps, lying Easterly of the Easterly line of Myrtle Avenue, 100 feet wide, as described in the Deed to the City of Los Angeles, recorded October 4, 1949 in Book 31153 Page 278, except the east 403.25 of said land."

⁵ The Natelson Company, Inc. *Employment Density Summary Report*. October 31, 2001. Based on a ratio of 1.0 employee per 1,366 square feet derived from the SCAG Employment Density Report.



EXHIBIT 2 PROJECT LOCATION
SOURCE: BLODGETT BAYLOSIS ENVIRONMENTAL PLANNING

4. NOISE CHARACTERISTICS AND REGULATORY SETTING

CHARACTERISTICS OF SOUND

Sound is mechanical energy transmitted by pressure waves through the air and is characterized by various parameters that include sound frequency, the speed of propagation, and the pressure level or energy content (amplitude). The most commonly used unit for measuring the level of sound is the decibel (dB). Zero on the decibel scale represents the lowest limit of sound that can be heard by humans. At the other extreme, the eardrum may rupture at 140 dB. The human ear can detect changes in sound levels greater than 3.0 dBA under normal ambient conditions. Changes of less than 3.0 dB are noticeable to some people under quiet conditions while changes of less than 1.0 dB are only discernible by few people under controlled, extremely quiet conditions. In general, an increase of between 3.0 dB and 5.0 dB in the ambient noise level is considered to represent the threshold for human sensitivity.

Noise levels may also be expressed as dBA where an “A” weighting has been incorporated into the measurement metric to account for increased human sensitivity to noise. The A-weighted measurements correlate well with the perceived noise levels at lower frequencies. Noise levels associated with various activities are shown in Exhibit 3.

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud.⁶ The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA at approximately 100 feet, which can cause serious discomfort.⁷ Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

Environmental noise descriptors are typically based on average noise levels over time, rather than instantaneous measurements. The most commonly used metric is the equivalent continuous sound level (L_{eq}). Rather than being measured directly, L_{eq} is calculated from A-weighted sound pressure levels (dBA) recorded over a specified period. The L_{eq} represents the constant sound level that, over a given time, would contain the same acoustic energy as the actual fluctuating sound levels. As such, it is widely used to describe average environmental noise exposure. Importantly, while sound pressure levels (e.g., L_{eq}) express the intensity of sound at a specific location and are affected by distance and environmental conditions, sound power levels (L_w) are intrinsic properties of the sound source itself. Unlike sound pressure, sound power is independent of distance and unaffected by obstacles, air absorption, or weather conditions. In contrast, sound pressure levels decrease with distance due to factors such as geometric spreading, absorption by air and surfaces, intervening barriers or obstacles, and meteorological conditions (e.g., wind, humidity).

⁶ California Department of Transportation (Caltrans). *Technical Noise Supplement: A Technical Supplement to the Traffic Noise Analysis Protocol*. September 2013.

⁷ U.S. Environmental Protection Agency (EPA), Office of Noise Abatement and Control. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. March 1974.

Noise Levels – in dBA

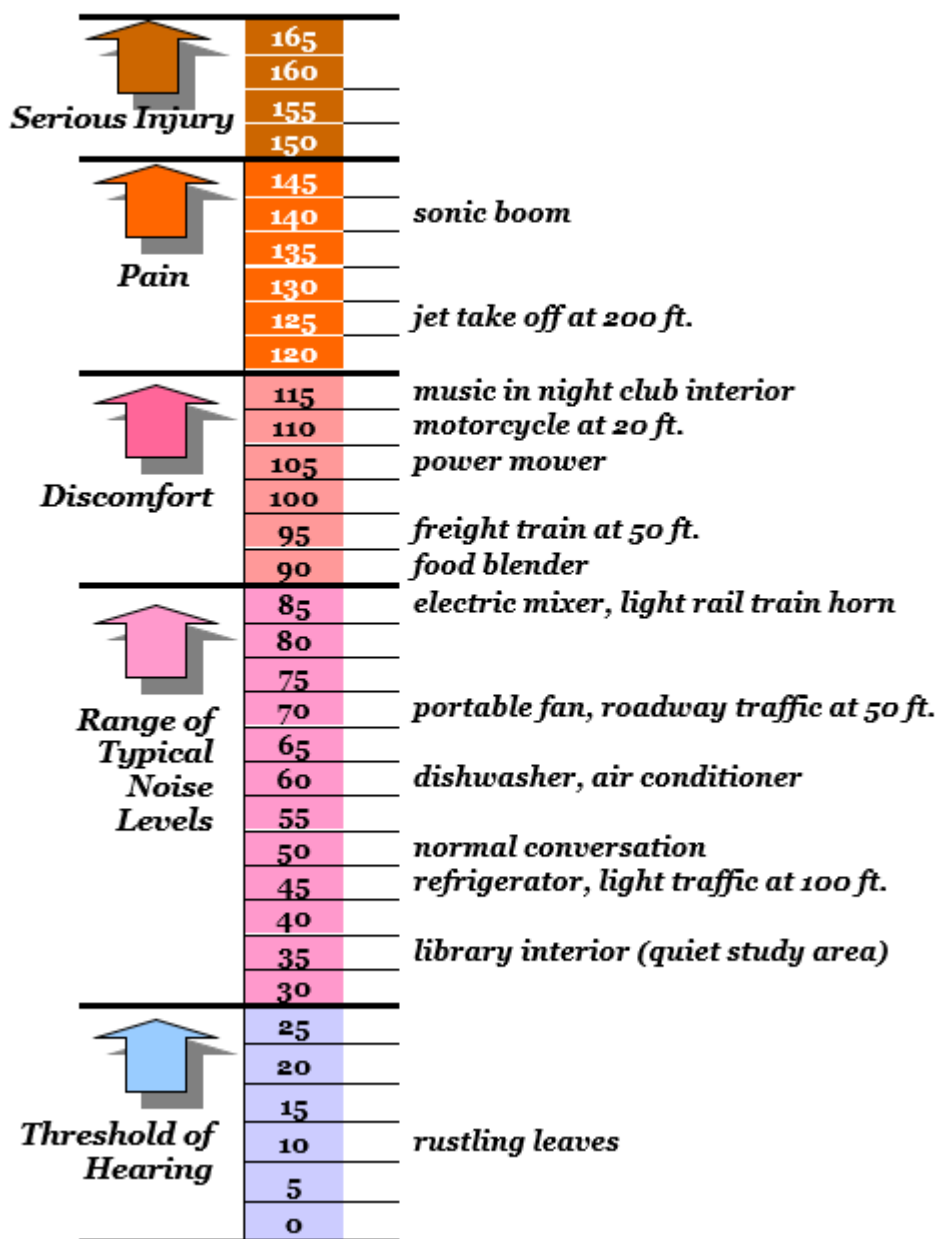


EXHIBIT 3 TYPICAL NOISE LEVELS

SOURCE: BLODGETT BAYLOSIS ENVIRONMENTAL PLANNING

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{50} , L_{25} , L_8 , and L_2 are commonly used. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent, and 2 percent of a stated time. Sound levels associated with the L_2 and L_8 typically describe transient or short-term events, while levels associated with the L_{50} describe the steady state (or median) noise conditions. While the L_{50} describes the median noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour. Therefore, the L_{eq} noise descriptor is generally 1-2 dBA higher than the L_{50} noise level. While useful, peak-hour or average noise levels do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level, is utilized. The CNEL 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 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise-sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Monrovia relies on the 24-hour CNEL level to assess land use compatibility with transportation-related noise sources. Table 2 summarizes the noise metrics typically used for measurements, computations and assessments. All of these noise metrics are expressed in units of A-weighted decibels (dBA). A-weighted sound levels represent the overall noise at a receiver that is adjusted in frequency to approximate typical human hearing sensitivity.

TABLE 2 – NOISE METRICS

Metric	Abbreviation	Definition
A-weighted Sound Level	dBA	A-weighted sound levels represent the overall noise at a receiver that is adjusted in frequency to approximate typical human hearing sensitivity. This is expressed as A-weighted decibels (dBA), the basic noise unit for transit noise analyses.
Sound Exposure Level	SEL	SEL is the cumulative noise exposure from a single noise event, normalized to one second. SEL contains the same overall sound energy as the actual varying sound energy during the event. It is the primary metric for the measurement of transit vehicle noise emissions, and is an intermediate metric in the measurement and calculation of both $L_{eq(t)}$ and L_{dn} .
Equivalent Sound Level	$L_{eq(t)}$	The equivalent sound level $L_{eq(t)}$ describes a receiver's cumulative noise exposure from all events normalized to a specified period of time "t". $L_{eq(t)}$ represents a hypothetical, constant sound level and contains the same overall sound energy as the actual varying sound energy during the time period "t". For transit noise impact assessments, the equivalent sound level metric is A-weighted and all events are normalized over a one-hour time period, $L_{eq(1hr)}$. For transit noise assessments, this metric is appropriate for non-residential land uses and is computed for the loudest hour of project related activity during hours of noise sensitivity.
Day-Night Sound Level	L_{dn}	L_{dn} describes a receiver's cumulative noise exposure from all events over 24 hours. Events between 10 p.m. and 7 a.m. are increased by 10 dB to account for humans' greater nighttime sensitivity to noise. L_{dn} is used to assess transit noise for residential land uses.
Maximum Sound Level	L_{max}	The maximum level describes the maximum noise level reached during a single noise event. For transit noise impact assessments, it is appropriate to consider the A-weighted maximum level (L_{max}) to understand the full context of the scenario. It is not appropriate to use this metric for transit noise impact assessments. This metric is commonly used in vehicle noise specifications and commonly measured for individual vehicles.

Source: United States Department of Transportation, Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. September 2018, Table 3-1 Noise Metrics.

The State of California Office of Planning and Research (OPR) Noise Element Guidelines include recommended interior and exterior level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. These guidelines are also included in the Monrovia General Plan. The OPR Guidelines describe the compatibility of various land uses with a range of environmental noise levels in terms of dBA CNEL (Community Noise Equivalent Level). For example, a noise environment of 50 dBA CNEL to 60 dBA CNEL is considered to be “normally acceptable” for single-family residential uses. The State indicates that locating residential units, parks, and institutions (such as churches, schools, libraries, and hospitals) in areas where exterior ambient noise levels exceed 65 dBA CNEL is undesirable⁸. The OPR recommendations also note that, under certain conditions, more restrictive standards than the maximum levels cited may be appropriate. As an example, the standards for quiet suburban and rural communities may be reduced by 5 dBA to 10 dBA to reflect their lower existing outdoor noise levels in comparison with urban environments. As shown on Exhibit 4, the OPR General Plan Guidelines identify four (4) categories of compatibility, each of which are described below.

- *Normally Acceptable.* Specific 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.

SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

- *Geometric Spreading and Ground Absorption.* Noise may be generated from a point source, such as machinery, or from a line source, such as a roadway segment containing moving vehicles. Because the area of the sound wave increases as the sound gets further and further from the source, less energy strikes any given point over the surface area of the wave. This phenomenon is known as “spreading loss.” Due to spreading loss, noise attenuates (decreases) with distance. Stationary, or point, noise subject to spreading loss experiences a 6.0 dBA reduction for every doubling of the distance beginning with the initial 50-foot distance over hard surfaces (asphalt, concrete) and 7 dBA over soft surfaces (landscaping). For every doubling of distance thereafter, noise emanating from a line source drop another 3.0 dBA over a hard, unobstructed surface such as asphalt and by approximately 4.5 dBA over a soft surface, such as vegetation.⁹

⁸ Governor’s Office of Planning and Research (OPR). *State of California General Plan Guidelines, Appendix D: Noise Element Guidelines*. October 2017.

⁹ U.S. Department of Transportation, Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September 2018.

- *Atmospheric Effects.* Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors, such as air temperature, humidity, and turbulence, can also have significant effects.¹⁰
- *Shielding.* A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other vegetation typically only has an “out of sight, out of mind” effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line of sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide, and dense enough to completely obstruct the line of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure.¹¹
- *Noise Control.* Noise control is the process of obtaining an acceptable noise environment for an observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to these three elements.
- *Noise Barrier Attenuation.* Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source.¹²
- *Land Use Compatibility with Noise.* Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area’s desirability as a place to live, shop, and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages state and local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized.¹³

¹⁰ Caltrans (2013), *Technical Noise Supplement*.

¹¹ Ibid.

¹² Ibid.

¹³ Ibid.

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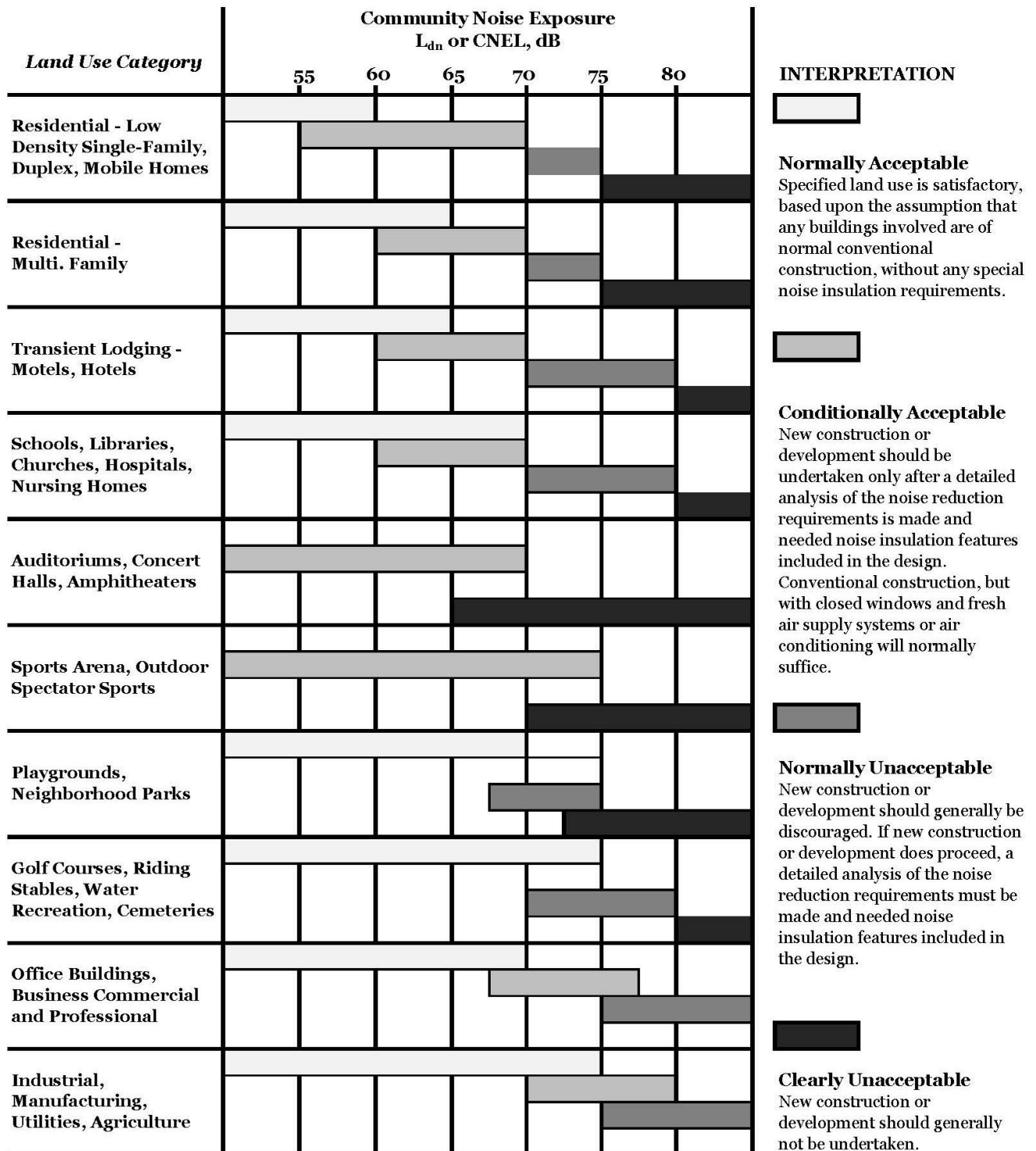


EXHIBIT 4 LAND USE COMPATIBILITY GUIDELINES
 SOURCE: OPR (2017)

- *Community Response to Noise.* Approximately sixteen percent (16%) of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent (20-30%) of the population will not complain even in very severe noise environments.¹⁴ Thus, a variety of reactions can be expected from people exposed to any given noise environment. Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing.¹⁵ According to research originally published in the Noise Effects Handbook¹⁶ the percentage of high annoyance ranges from approximately 0 percent (0%) at 45 dB or less, 10 percent (10%) are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent (70%) being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels, as shown in Exhibit 5. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible.¹⁷

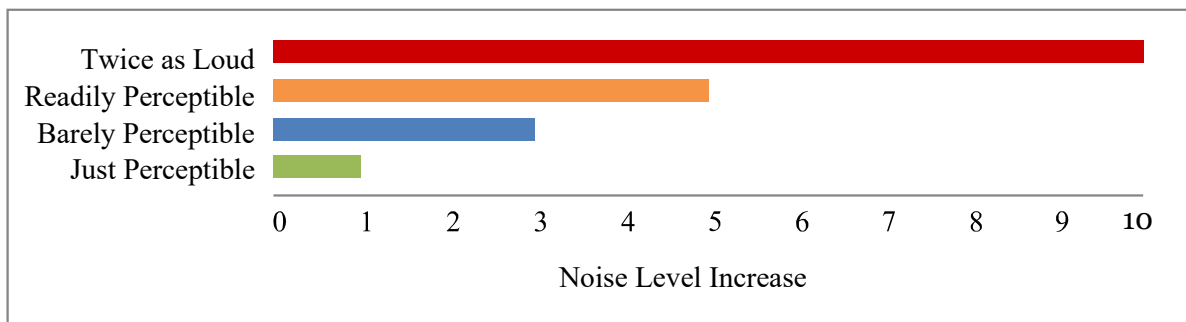


EXHIBIT 5 NOISE LEVEL INCREASE PERCEPTION

VIBRATION

Per the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual, vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem, and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon¹⁸. Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood- frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration¹⁹. In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structures reduce

¹⁴ U.S. Environmental Protection Agency (EPA), Office of Noise Abatement and Control. *Noise Effects Handbook: A Desk Reference to Health and Welfare Effects of Noise*. EPA 550/9-82-106. October 1979 (revised July 1981).

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ U.S. Department of Transportation, Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September 2018.

¹⁸ Federal Transportation Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018).

¹⁹ Ibid.

vibration levels due to the coupling of the building to the soil.

Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal²⁰. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body²¹. However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV²². Thus, either can be used for the description of vibration impacts.

While not universally accepted, vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels, provide a background of common vibration levels, and set vibration limits²³. VdB serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels.

As stated in the FTA guidance manual, the background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 6 illustrates common vibration sources and the human and structural response to ground-borne vibration.

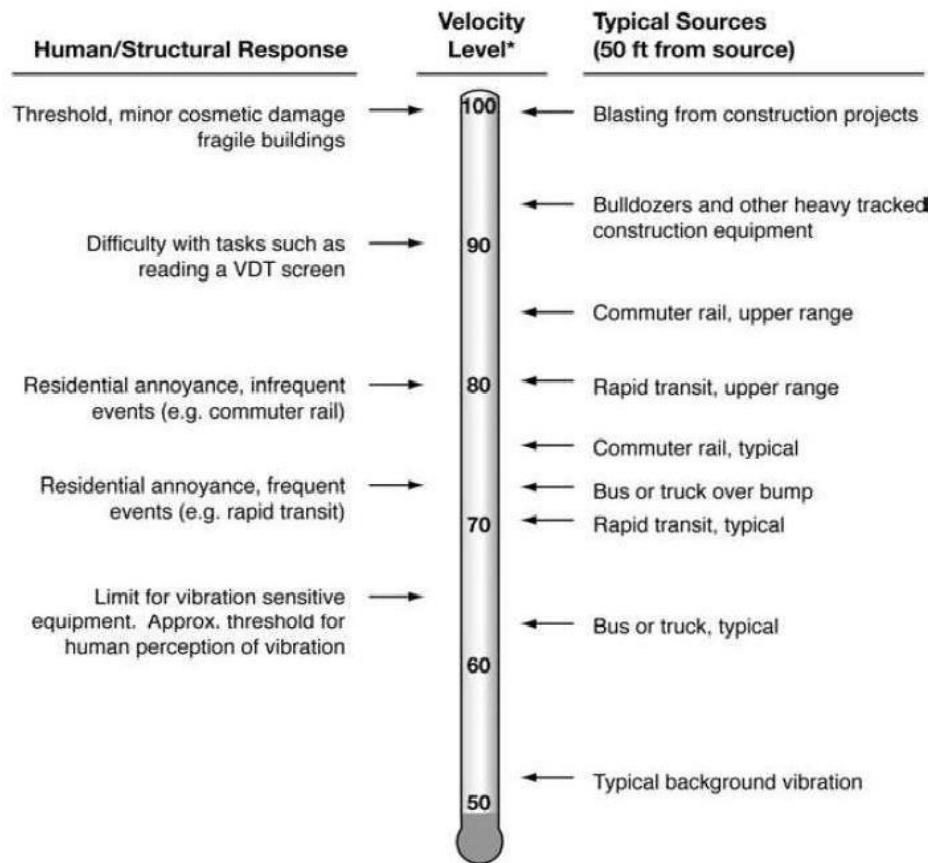
²⁰ Ibid.

²¹ Ibid.

²² Governor's Office of Planning and Research (OPR). *State of California General Plan Guidelines, Appendix D: Noise Element Guidelines*. October 2017.

²³ U.S. Department of Transportation, Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September 2018.

EXHIBIT 6 RESPONSES TO GROUND-BORNE VIBRATION



* RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second

Source: FTA (2018).

REGULATORY SETTING FOR NOISE IMPACTS

To limit population exposure to physically and/or psychologically damaging, as well as intrusive, noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

- **State of California Noise Requirements.** The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element, which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR).²⁴ The purpose of the Noise Element is to limit the exposure of the community to excessive noise levels. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

²⁴ Governor's Office of Planning and Research (OPR). *State of California General Plan Guidelines, Appendix D: Noise Element Guidelines*. October 2017.

- *City of Monrovia Noise Control Regulations.* The City of Monrovia has adopted a Noise Element of the General Plan to control and abate environmental noise and to protect the citizens of the City of Monrovia from excessive exposure to noise.²⁵ The Noise Element identifies the City of Monrovia policy on allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise Element identifies a noise control plan to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses. To protect City of Monrovia residents from excessive noise, the Noise Element contains seven programs related to the control of noise with the following programs applicable to the Project:

Program No. 1: The City will continue to implement and enforce the City of Monrovia's noise ordinance for the control of unnecessary and unwanted noises.

Program No. 3: The City may implement a noise zoning code, defining compatible land usage requirements based on the guidelines of Figure 2. The City would require an analysis of whether or not the proposed development would be in compliance with this code. If the development falls in the CNEL or L_{dn} range above that indicated for the normally acceptable category, noise control design steps must be included in the project plans.

Program No. 5: The California Motor Vehicle Code specifies maximum allowable noise levels for cars and trucks under a variety of operating conditions on State highways. The City will enforce them on City streets

Program No. 6: Future projects within the City will reflect a consciousness on the part of the City regarding the reduction of unnecessary noise near noise-sensitive areas such as residences, schools, parks, hospitals, libraries, and convalescent homes.

- *Land Use Compatibility Guidelines.* The noise programs identified in the City of Monrovia Noise Element are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 4, provides the city with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. The proposed warehouse land use is considered normally acceptable with unmitigated exterior noise levels of less than 75 dBA CNEL. For conditionally acceptable exterior noise levels, approaching 75 dBA CNEL for warehouse land uses, new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.²⁶ In contrast, Exhibit 4 identifies that a residential land use is considered normally acceptable with unmitigated exterior noise levels of less than 60 dBA CNEL. For conditionally acceptable exterior noise levels, approaching 70 dBA CNEL for residential land uses, construction or development should be undertaken only after a detailed analysis.
- *City of Monrovia Stationary Noise Standards.* The Monrovia Municipal Code (MMC) Chapter 9.44 (Noise), provides the following noise guidelines and standards in the City. The City does not impose noise limits for temporary construction activities at surrounding noise sensitive property lines. However, permitted construction hours and other noise restrictions are established in MMC § 9.44.080, Exemptions.
 - The City permits construction or demolition work between the hours of 7:00 a.m. and 7:00 p.m. on weekdays and the hours of 9:00 a.m. and 6:00 p.m. on weekends and holidays.

²⁵ City of Monrovia. *General Plan Noise Element*. June 12, 2002.

²⁶ City of Monrovia, *Noise Element*. 2002

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- The City permits the operation of any mechanically powered saw, sander, drill, grinder, lawn or garden tool or similar tool shall be permitted between 7:00 a.m. and 7:00 p.m. on weekdays and the hours of 10:00 a.m. and 10:00 p.m. on weekends and holidays.
- The City permits the handling of boxes, crates, containers, garbage cans or other similar objects between the hours of 7:00 a.m. and 7:00 p.m.
- No person (or entity) shall create or allow the creation of noise on any such residential property which causes the noise level to exceed the actual measured median ambient noise level, or the following presumed ambient noise level (shown in Table 3), whichever is greater:

**TABLE 3 – ALLOWABLE NOISE LEVELS AND PERMITTED INCREASES IN NOISE LEVELS
(MMC §§ 9.44.040 AND 9.44.060)**

Receiving Land Use	Time Period	Base Allowable Noise Level (dBA L ₅₀) ²⁷	Exterior Noise Standards (dBA) ^{*28}			
			L ₂₅ (15 mins)	L ₈ (5 mins)	L ₂ (1 min)	L _{max} (<1 min)
Residential	Daytime (7:00 a.m. to 9:00 p.m.)	55 or measured ambient L ₅₀ (greater of)	60	65	70	75
	Nighttime (9:00 p.m. to 7:00 a.m.)	50 or measured ambient L ₅₀ (greater of)	55	60	65	70

* Noise levels shall not exceed for the duration periods specified in Section 9.44.060 MMC. The percent noise level is the level exceeded “n” percent of the time during the measurement period. L₈ is the noise level exceeded 8% of the time. “Daytime” = 7:00 a.m. to 9:00 p.m.; “Nighttime” = 9:00 p.m. to 7:00 a.m.

Increases in noise levels prescribed in Table 3 (MMC § 9.44.040) are permitted in accordance with the following requirements. Additionally, noise standards set in Chapter 9.44 shall be decreased by five dBA for any noise source which emits an impulsive sound. The percentile noise descriptors are provided to ensure that the duration of the noise source is fully considered. The median (L₅₀) or average (L_{eq}) noise level metrics best describe the roof-mounted air conditioning units and trash enclosure activity whereas intermittent instances of truck activity are best described by L₅, L₁, or L_{max}. In addition, the L_{eq} noise level metric accounts for noise fluctuations over time by averaging the louder and quieter events and giving more weight to the louder events. In addition, due to the mathematical relationship between the median (L₅₀) and the mean (L_{eq}), the L_{eq} will always be larger than or equal to the L₅₀. The more variable the noise becomes, the larger the L_{eq} becomes in comparison to the L₅₀. Therefore, this noise analysis conservatively relies on the average L_{eq} sound level limits to describe the Project operational noise levels. In summary, the City of Monrovia has set median L₅₀ exterior noise limits to control unnecessary, excessive, and annoying noise in residential areas. L_{eq} refers to the average A-weighted sound level during a specified period. The hourly Leq metric typically used is denoted as dBA L_{eq}. Pursuant to MMC Chapter 9.44.040(A), no person shall create or allow the creation of noise on any residential property, which causes the noise level to exceed the actual measured median (L₅₀) base ambient noise level or the presumed ambient noise level provided in Monrovia Municipal Code, Permitted Increases in Noise Levels (MMC § 9.44.060).

CITY-WIDE MITIGATION MEASURES

The City’s existing General Plan does not establish specific goals, policies, or standards related to noise and vibration; however, the City’s Monrovia General Plan Proposed Land Use and Circulation Elements EIR²⁹

²⁷ City of Monrovia. *Monrovia Municipal Code*, § 9.44.040.

²⁸ Ibid. MMC § 9.44.060.

²⁹ City of Monrovia. *Monrovia General Plan Update: Land Use and Circulation Elements Final Environmental Impact Report and Mitigation Monitoring and Reporting Program*. SCH No. 2007021135. Certified 2008.

included the following Mitigation Measures (General Plan EIR Mitigation Measures) related to noise and vibration as listed below.

- *General Plan EIR Mitigation Measure NOISE-A:* Stationary noise sources associated with future non-residential uses (e.g. mechanical equipment and loading docks) within the project areas shall not have a direct line-of-sight to noise sensitive uses. The line-of-sight between the noise source and noise sensitive receptor shall be blocked through the orientation of the non-residential land use and/or by using noise barriers, such as a concrete block wall or enclosing the noise source. *Mitigation Measure NOI-8 requires stationary noise sources to be designed so that line-of-sight to nearby sensitive receptors is blocked. The project would be consistent with this mitigation measure.*
- *General Plan EIR Mitigation Measure NOISE-B:* Project-specific vibration studies shall be prepared prior to the approval of residential land uses within 300 feet of the Gold Line rail tracks. The studies shall quantify vibration levels based on measurements of existing light rail activity, vibration propagation tests of the soil at project sites, and Gold Line travel speed. If necessary, the studies shall include mitigation to reduce vibration levels at proposed residential land uses to below the 72 VdB FTA significance threshold. Mitigation measures may include, but are not limited to, supporting the building foundation on elastomer pads similar to bridge bearing pads. *The proposed project is a warehouse/office development and is not a residential project located within 300 feet of the Gold Line rail tracks. Therefore, this mitigation measure is not relevant to the proposed project.*
- *General Plan EIR Mitigation Measure NOISE-C:* All construction equipment shall be equipped with mufflers and other suitable noise attenuation devices. *Mitigation Measure NOI-3 requires all construction equipment to be equipped with mufflers and other suitable noise attenuation devices. The project would be consistent with this mitigation measure.*
- *General Plan EIR Mitigation Measure NOISE-D:* Grading and construction contractors shall use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment). *Mitigation Measure NOI-3 requires quieter construction equipment where feasible. Mitigation Measure NOI-2 also requires the use of Tier IV rated equipment. The project would be consistent with this mitigation measure.*
- *General Plan EIR Mitigation Measure NOISE-E:* All residential units located within 500 feet of the construction site shall be sent a notice regarding the construction schedule of the proposed project. A sign, legible at a distance of 50 feet shall also be posted at the construction site. All notices and the signs shall indicate the dates and duration of construction activities, as well as provide a telephone number where residents can inquire about the construction process and register complaints. *Mitigation Measure NOI-3 requires notification to residences within 500 feet and posting of construction signage with schedule and contact information. The project would be consistent with this mitigation measure.*
- *General Plan EIR Mitigation Measure NOISE-F:* A “noise disturbance coordinator” shall be established. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and would be required to implement reasonable measures such that the complaint is resolved. All notices that are sent to residential units within 500 feet of the construction site and all signs posted at the construction site shall list the telephone number for the disturbance coordinator. *Mitigation Measure NOI-3 requires a noise disturbance coordinator to respond to construction noise complaints. The project would be consistent with this mitigation measure.*

LOS ANGELES COUNTY NOISE STANDARDS

The Los Angeles County noise restrictions are applicable to the properties within the residential community to the north and east. Chapter 12.08 (Noise Control) of the Los Angeles County Code (LACC) contains the County Noise Ordinance. The County sets maximum construction noise levels “at residential structures.” As shown in Table 4 below, the daytime noise level limit at single-family residences for mobile construction equipment is 75 dBA L_{max} and the daytime noise level for stationary equipment is 60 dBA L_{max} . In addition, the County provides the following noise guidelines and standards:

- The County’s Noise Ordinance requirements are not applicable to all legal Motor Vehicles of transportation operating in a legal manner in accordance with local, state and federal vehicle-noise regulations within the public right-of-way or air space, or on private property. (LACC Section 12.08.570(I))
- Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real-property line, except for emergency work of public service utilities or by variance issued by the health officer, is prohibited. (LACC Section 12.08.440 (Construction Noise))
- Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans or similar objects between the hours of 10:00 p.m. and 6:00 a.m. in such a manner as to cause noise disturbance is prohibited. (LACC Section 12.08.460)
- Sounding or permitting the sounding of any electronically amplified signal from any stationary bell, chime, siren, whistle, or similar device intended primarily for nonemergency purposes, from any place, for more than 10 consecutive seconds in any hourly period is prohibited. (LACC Section 12.08.510.A)
- All mobile or stationary internal-combustion-engine powered equipment or machinery shall be equipped with suitable exhaust and air-intake silencers in proper working order. (LACC Section 12.08.440(C))

TABLE 4 – LOS ANGELES COUNTY CONSTRUCTION NOISE LIMITS

Time Interval	Single-Family Residential (dBA L_{max})	Multi-Family Residential (dBA L_{max})	Semi-Residential or Commercial (dBA L_{max})
Mobile Equipment (Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment.			
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75	80	85
Daily 8:00 p.m. to 7:00 a.m., and all day Sunday and legal holidays	60	64	70
Stationary Equipment (Maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment.			
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60	65	70
Daily 8:00 p.m. to 7:00 a.m., and all day Sunday and legal holidays	50	55	60

Source: LACC § 12.08.440 (Construction Noise)

Los Angeles County’s Code standards for operational noise are outlined below in Table 5.

TABLE 5 – LOS ANGELES COUNTY OPERATIONAL PERMITTED INCREASES IN NOISE LEVELS

Receiving Land Use	Time Period	Base Ambient Noise Level (dB L ₅₀) ³⁰	Exterior Noise Standards (dB)				
			L ₃₀ (30 mins)	L ₂₅ (15 mins)	L ₅ (5 mins)	L ₁ (1 min)	L _{max} (<1 min)
Residential	Daytime (7:00 a.m. to 10:00 p.m.)	50 or L ₅₀ (greater of)	50 or L ₅₀ (greater of)	55 or L ₂₅ (greater of)	70 or L _{8.3} (greater of)	65 or L _{1.7} (greater of)	70 or L ₀ (greater of)
	Nighttime (10:00 p.m. to 7:00 a.m.)	45 or L ₅₀ (greater of)	45 or L ₅₀ (greater of)	50 or L ₂₅ (greater of)	65 or L _{8.3} (greater of)	60 or L _{1.7} (greater of)	65 or L ₀ (greater of)

Source: LACC § 12.08.390 (Exterior Noise Standards – Citations for Violations Authorized When)

As Los Angeles County Code standards are stricter than Monrovia, project adherence to the County standards is required for the sensitive receptors located to the north of the site.

5. SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines.³¹ For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

- A. 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;
- B. Generation of excessive ground-borne vibration or ground-borne noise levels; or,
- 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 two miles of a public airport or public use airport, exposing people residing or working in the project area to excessive noise levels.

NOISE LEVEL INCREASES (THRESHOLD A)

Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes that there is no single noise increase that renders the noise impact significant.³² The Federal Interagency Committee on Noise (FICON)³³ developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}). The FICON guidance provides an established source of criteria to assess the impacts of substantial permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the “without Project (baseline)” noise levels are

³⁰ County of Los Angeles. *Los Angeles County Code*, § 12.08.390.A.

³¹ State of California. *California Environmental Quality Act Guidelines, Appendix G: Environmental Checklist Form*. 2018.

³² *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099.

³³ Federal Interagency Committee on Noise (FICON). *Federal Agency Review of Selected Airport Noise Analysis Issues*. August 1992.

already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or readily perceptible, 3 dBA or barely perceptible, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increase and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration³⁴ and Caltrans³⁵.

- *Transportation/Mobile Sources (Substantial Permanent Noise Level Increase).* The FICON criteria are based on long-term, or permanent noise level increases and are appropriate for assessing the evaluation of mobile noise using the dBA CNEL metric, consistent with the City of Monrovia General Plan Noise Element, which evaluates noise using dBA CNEL. Therefore, if the existing noise level is less than 60 dBA CNEL, a 5 dBA CNEL or greater increase will be considered significant; if the existing noise level is 60 to 65 dBA CNEL, a 3 dBA CNEL or greater increase will be considered significant; and if the existing noise level is greater than 65 dBA CNEL, a 1.5 dBA CNEL or greater increase will be considered significant.
- *Non-Transportation Sources (Substantial Permanent Noise Level Increase).* Similar to the transportation/mobile source noise analysis, since the on-site stationary noise source during operation would also represent a permanent noise source, the FICON increase criteria are used for the evaluation of stationary noise sources using the dBA CNEL metric, consistent with the City of Monrovia Noise Ordinance, which evaluates stationary noise sources dBA CNEL. Therefore, if the existing noise level is less than 60 dBA CNEL, a 5 dBA CNEL or greater increase will be considered significant; if the existing noise level is 60 to 65 dBA CNEL, a 3 dBA CNEL or greater increase will be considered significant; and if the existing noise level is greater than 65 dBA CNEL, a 1.5 dBA CNEL or greater increase will be considered significant. Additionally, since stationary noise sources may include different characteristics from transportation noise sources, exceeding the City noise ordinance limits at residential properties will also have a significant impact.
- *Construction Noise (Substantial Temporary Noise Level Increase).* In California, a substantial noise increase is considered to occur when the project's predicted noise level exceeds the existing noise level by 12 dBA or more. The use of 12 dB was established in California many years ago and is based on the concept that a 10 dB increase is generally perceived as a doubling of loudness.³⁶ Therefore, if the Project-related construction noise levels generate a temporary noise level increase above the existing ambient noise levels of up to 12 dBA L_{eq} , then the Project construction noise level increases will be considered a potentially significant impact. However, since an increase of 12 dBA could result in noise levels over 85 dBA L_{eq} , which the California Occupational Safety and Health Administration (CalOSHA) identifies as a potentially hazardous noise level, the increase should not be allowed to result in an absolute noise level greater than 80 dBA L_{eq} at any residence, which is consistent with the FTA recommendations. Therefore, if the project-related construction noise levels generate a temporary noise level increase over the existing daytime ambient noise levels in excess of 12 dBA L_{eq} , or exceed 80 dBA L_{eq} , then the project construction noise level increases will be considered a significant impact.

VIBRATION (THRESHOLD B)

The Project does include sources of operational vibration activities commonly associated with heavy truck activities. Additionally, vibration during construction would occur. The vibration impacts originating from

³⁴ U.S. Department of Transportation, Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September 2018.

³⁵ Caltrans (2013), *Technical Noise Supplement*.

³⁶ Caltrans (2013), *Technical Noise Supplement*.

the construction of the project, vibration-generating activities are appropriately evaluated by the thresholds of significance outlined in the FTA Transit Noise and Vibration Impact Assessment Manual³⁷. These guidelines identify human-response criteria for residences and buildings where people normally sleep of 72 VdB for frequent events, 75 VdB for occasional events, and 80 VdB for infrequent events. For potential building damage, nearby residential structures are evaluated using the FTA Category III criterion for non-engineered timber and masonry buildings, which identifies a structural damage screening threshold of 0.2 inches per second PPV, or approximately 94 VdB. These criteria are used in this noise analysis to assess potential impacts due to Project construction and operational vibration levels. Airport or Airstrip Proximity (Threshold C)

The Project site is not located within two miles of an airport or airstrip. The nearest airport is the San Gabriel Airport located approximately 2.45 miles southwest of the Project site, and the nearest major airport is the Burbank Airport located roughly 16 miles west of the Project site. Thus, the Project would not be exposed to excessive noise levels from airport operations, and therefore, there are no impacts, and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 6 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

³⁷ U.S. Department of Transportation, Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September 2018.

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TABLE 6 – SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use / Jurisdiction	Establishing Condition(s)	Applicable Threshold / Standard	
On- and Off-Site	Both	See Exhibit 4 Land Use Compatibility Guidelines		
Construction Noise	Adjacent Residential (West) City of Monrovia	MMC does not include a local threshold and is subject to the State thresholds. In California, a substantial noise increase is considered to occur when the project’s predicted noise level exceeds the existing noise level by 12 dBA or more. The project is consistent with the State land use and noise compatibility guidelines (refer to Exhibit 4)		
	Adjacent Residential (North) Los Angeles County	Maximum daytime noise level (L _{max}) ¹ (see Table 4)	Mobile Source L _{max} :	75 dBA L _{max}
			Stationary Source L _{max} :	60 dBA L _{max}
	Applicable to both Jurisdictions FTA and CTNA (National Standard)	Existing ambient exterior noise level (L _{eq})	≥ 12 dBA L _{eq} increase over ambient = significant ²	
			Absolute limit: 80 dBA L _{eq} at residences ³	
Operational Noise	Adjacent Residential (West) City of Monrovia	Existing ambient daytime noise level ⁴ (7:00 a.m. - 9:00 p.m.) (see Table 3)	55 dBA or L ₅₀ (greater of)	L ₂₅ (15 min.) = 60 dBA
				L ₄₅ (5 min.) = 65 dBA
				L ₅ (1 min.) = 70 dBA
				L _{max} (< 1 min.) = 75 dBA
	Adjacent Residential (North) Los Angeles County	Existing median ambient exterior noise level (L ₅₀) ⁵ (see Table 5)	L ₅₀ or 50 dB (greater of)	L ₃₀ (30 min.) = 50 dBA or L ₅₀ (greater of)
				L ₄₅ (15 min.) = 55 dBA or L ₂₅ (greater of)
				L ₅ (5 min.) = 70 dBA or L _{8.3} (greater of)
				L ₁ (1 min.) = 65 dBA or L _{1.7} (greater of)
	Applicable to both Jurisdictions FICON (National Standard)	Existing ambient exterior noise level (CNEL) ⁶	Ambient < 60 dBA CNEL	≥ 5 dBA CNEL increase = significant
			Ambient 60–65 dBA CNEL	≥ 3 dBA CNEL increase = significant
			Ambient > 65 dBA CNEL	≥ 1.5 dBA CNEL increase = significant
Vibration – Construction & Operations	Noise-Sensitive Residential (Both Jurisdictions)	Vibration level at nearby residential structures	Structural damage screening: 0.2 in/sec PPV / approximately 94 VdB for non-engineered timber and masonry residential structures. ⁷ Human response: 72 VdB for frequent events, 75 VdB for occasional events, and 80 VdB for infrequent events. ⁷	Continuous vibration level at residential structures

1. LACC §12.08.440. Construction noise standards.

2. Caltrans. *Traffic Noise Analysis (CTNA) Protocol*. (April 2020). Substantial temporary noise increase threshold of 12 dBA L_{eq} .

3. FTA (2018). Construction noise absolute threshold of 80 dBA L_{eq} at residences.

4. MMC §§ 9.44.040 and 9.44.060. Exterior noise standards and permitted increases.

5. LACC §12.08.390. Operational noise standards.

6. Federal Interagency Committee on Noise (FICON). Federal Agency Review of Selected Airport Noise Analysis Issues. August 1992.

7. FTA (2018). Continuous vibration damage threshold of 94 VdB for non-engineered timber and masonry buildings.

6. EXISTING AMBIENT NOISE ENVIRONMENT

To characterize the ambient noise environment, noise measurements were taken at the Project site. The closest noise-sensitive receptors are single-family residential properties located adjacent to the site along the north and west property lines and there is a 0-foot separation between property lines. Additionally, residences are located across California Avenue, which is approximately 70 feet to the east. While there are sensitive receptors directly adjacent to the site (with a 0-foot separation at the property lines), there is about 60 feet separation between the proposed building and the west property line, and a 20 foot separation between the proposed building and the north property line.

Four sets of 100 noise measurements were taken: two along the project site’s east property line adjacent to California Avenue, a third inside the site’s interior along the west property line, and one inside the southwest corner of the site (refer to Exhibit 7). A Sper Scientific Digital Sound Meter was used to conduct the noise measurements. The measurements were captured five feet above the ground surface at a location free from any obstructions. The noise meter setting was adjusted for “slow” on an “A weighted” measurement. Two measurements were taken on October 27, 2025, Monday morning at 9:30 am and ending at 11:30 pm. The third and fourth measurements were taken in the site’s interior on Friday, March 13, 2026 at 9:25 AM and ending at 11:30 pm. The ambient noise environment was dominated by vehicular traffic on California Avenue. These noise measurements were taken after the previous onsite improvements had been demolished and cleared of structures. Exhibit 7 shows the location of where the ambient noise measurements were taken. Table 7 indicates the variation in ambient noise levels over time during the measurement period.

TABLE 7 – AMBIENT NOISE MEASUREMENT RESULTS

Noise Metric	Noise Level (dBA)			
	Location #1 (Northeast)	Location #2 (Southeast)	Location #3 (West)	Location #4 (Southwest)
L _{max} (Maximum Noise Level)	70.1	69.8	63.5	66.3
L ₉₉ (Noise levels <99% of time)	66.4	67.4	61.5	65.8
L ₉₀ (Noise levels <90% of time)	62.9	64.4	54.1	62.3
L ₇₅ (Noise levels <75% of time)	57.2	59.0	52.3	59.4
L ₅₀ (Noise levels <50% of time)	50.5	54.5	50.4	57.8
L _{min} (Minimum Noise Level)	46.9	50.0	44.4	48.8
Average Noise Level	52.8	55.8	51.1	57.6

Source: Blodgett Baylosis Environmental Planning.

The existing ambient noise measurements are included in Attachment A – Noise Measurements. The ambient median noise levels for the first three locations are below the ambient median threshold for the City of Monrovia (55 dBA); however, the fourth location exceeds the threshold by 2.8 dBA. The average noise measurements ranged from 51.1 dBA to 57.6 dBA during the measurement period. The ambient median noise levels at all four locations exceed the County of Los Angeles ambient threshold of 50 dBA. Accordingly, the analysis evaluates whether construction and operational noise would result in a substantial increase over existing ambient conditions at each representative location.

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EXHIBIT 7 LOCATION OF AMBIENT NOISE MEASUREMENTS
SOURCE: BLODGETT BAYLOSIS ENVIRONMENTAL PLANNING

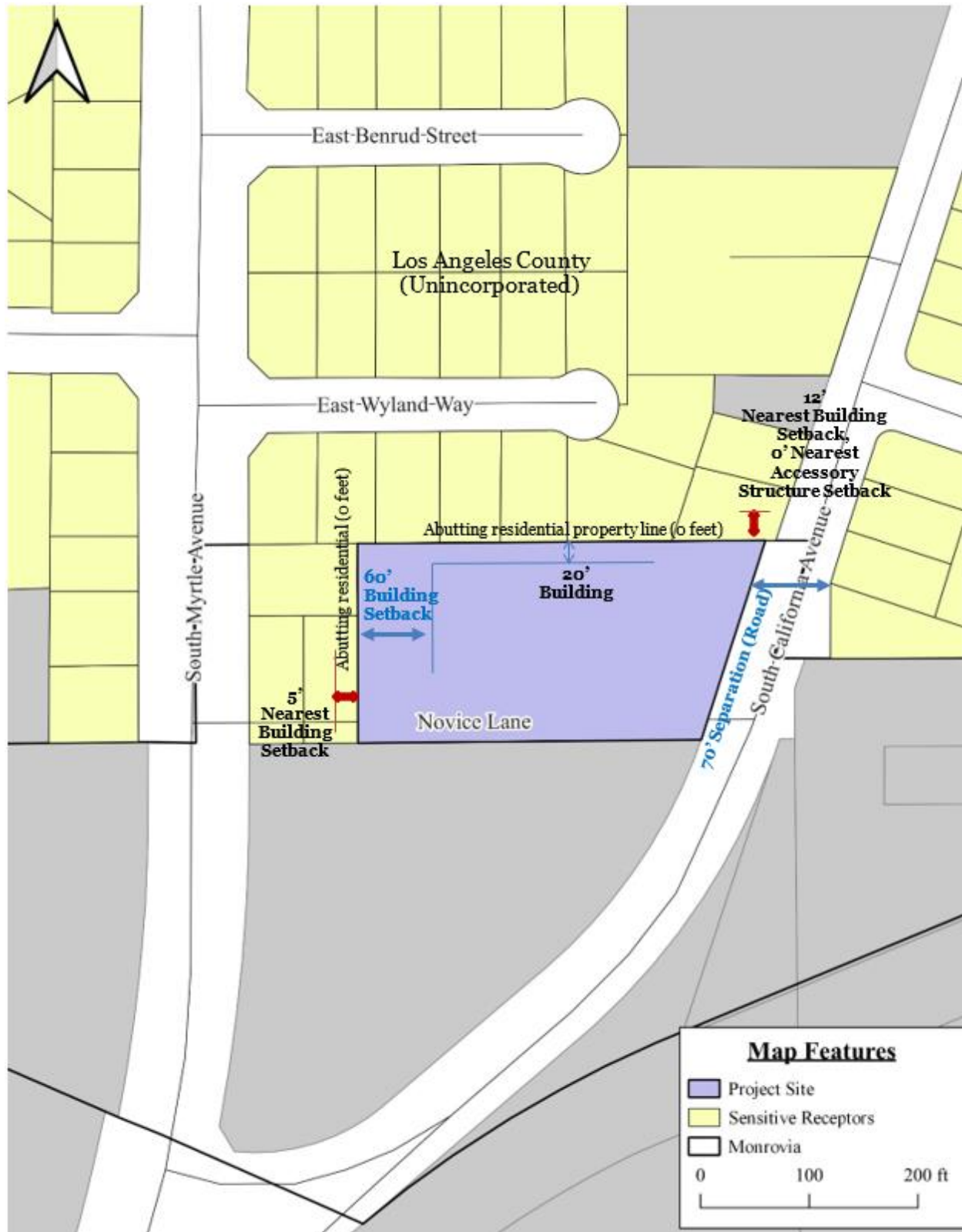


EXHIBIT 8 SENSITIVE RECEPTORS MAP

SOURCE: QGIS AND GOOGLE MAPS

7. CONSTRUCTION (SHORT-TERM) NOISE AND VIBRATION IMPACTS

NOISE FROM CONSTRUCTION EQUIPMENT

During the building construction phases, relatively high ground borne noise levels would be generated by the operation of heavy-duty trucks, backhoes, bulldozers, excavators, front-end loaders, scrapers, and other heavy duty construction equipment. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of construction, and the adjacent land uses.

The Monrovia Municipal Code and the Los Angeles County Code allow construction activities during designated hours, and the proposed Project must adhere to both jurisdictions' noise and construction hour standards. Monrovia limits construction activities to weekdays from 7:00 a.m. to 7:00 p.m. and weekends and holidays from 9:00 a.m. to 6:00 p.m. whereas the County of Los Angeles limits construction activities to 7:00 a.m. to 7:00 p.m., Mondays through Saturdays, except holidays. As a result, to adhere to both jurisdictions, construction hours, hours shall be limited to 7:00 a.m. to 7:00 p.m. Monday through Friday, from 9:00 a.m. to 6:00 p.m. Saturdays, and no construction permitted on Sundays and legal holidays (Mitigation Measure NOI-5).

In addition, the Project must adhere to applicable noise standards. While Monrovia does not provide numeric criteria for evaluating construction noise impacts, Los Angeles County regulates construction noise (see Tables 4 and 5). As shown in Table 4, the daytime noise limit at single-family residences is 75 dBA L_{max} for mobile construction equipment and 60 dBA L_{max} for stationary construction equipment.

To assess the significance of construction noise impacts to sensitive receptors in both Jurisdictions, this analysis uses the guidelines from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (FTA 2018) in conjunction with Los Angeles County construction noise limits. The FTA identifies a daytime exterior construction noise level of 80 dBA L_{eq} (1-hour) as a reasonable threshold for noise-sensitive residential land uses.

The closest noise-sensitive receptors are single-family residential properties located immediately adjacent to the Project site along the north and west property lines, with a 0-foot separation between property lines, as shown in Exhibit 8. Additionally, residences are located across California Avenue, approximately 70 feet to the east.

Table 8 (Typical Noise Levels from Construction Equipment) summarizes typical reference noise levels for commonly used construction equipment at a distance of 50 feet, based on FHWA and FTA source data³⁸. These values represent generalized, planning-level noise levels and are provided for background and comparison purposes. Typical equipment noise levels in Table 8 are not used to determine impact significance; significance conclusions are based on cumulative construction noise levels evaluated using actual measured equipment data, as summarized in Table 10.

³⁸ U.S. Department of Transportation, Federal Highway Administration (FHWA). *Road Construction Noise Model (RCNM)*. 2006.

TABLE 8 – TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Category		Equipment	Typical Construction Phase(s)	Typical Spec 721.560* L _{max} (dBA @50 ft)
Equipment Powered by Internal Combustion Engines	Earth-Moving Equipment	Backhoe	Site Preparation, Grading	89
		Bulldozer	Site Preparation, Grading	85
		Excavator	Site Preparation, Grading	85
		Grader	Site Preparation, Grading	85
		Scraper	Site Preparation, Grading	85
		Tractor (Crawler/Utility)	Site Preparation, Grading, Paving	84
		Dump Truck	Site Preparation, Grading, Paving	84
	Materials Handling Equipment	Loader (Front-End/Backhoe)	Site Preparation, Grading, Construction	80
		Forklift (Man Lift)	Building Construction	85
		Truck, Flatbed	Site Preparation, Grading, Construction	84
		Crane (Mobile/Tower)	Building Construction	85
		Cement and Mortar Mixer	Paving, Building Construction	80
		Concrete/Transit Mix Truck	Building Construction, Paving	85
	Stationary Equipment	Air Compressor	Building Construction, Architectural Coating	80
		Generator Set	Building Construction	82
		Welders	Building Construction, Finishing	73
	Impact Equipment	Compactor (Vibratory or Roller)	Grading, Paving	85
		Jackhammer / Pavement Breaker (if applicable)	Demolition, Utility Trenching	85
	Other Equipment	Paver (Asphalt Paver)	Paving	85

* The “Spec 721.560” value is a standardized noise measurement that represents the maximum sound level of construction equipment, measured at a distance of 50 feet from the loudest side of the equipment.

Source: FHWA (2006) Table 1. CA/T Noise Emission Reference Levels and Usage Factors.

Table 9 (Maximum Noise Levels Generated by Construction Equipment) identifies actual measured maximum noise levels for individual equipment types and illustrates potential short-term noise levels near the site boundary under conservative, worst-case conditions. To evaluate these conditions, actual measured equipment noise levels were used to estimate maximum noise levels at distances of 25, 50, and 100 feet, as shown in Table 9. Noise levels presented in Table 9 represent single-equipment L_{max} events, and do not reflect cumulative construction noise, and are not used to determine overall CEQA significance. Construction activities would cause a temporary increase in ambient noise levels around the Project site. As shown in Table 9, unmitigated short-term maximum noise levels at distances of 25 or 50 feet could exceed FTA guidance levels and Los Angeles County L_{max} thresholds for individual pieces of equipment.

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However, the Project would implement Mitigation Measure NOI-1, which requires installation of temporary acoustic barriers or noise blankets, achieving a minimum 5 dBA reduction, thereby reducing these short-term noise levels.

TABLE 9 – MAXIMUM NOISE LEVELS GENERATED BY CONSTRUCTION EQUIPMENT³⁹

Construction Equipment	Actual L _{max} @25 ft.	Actual L _{max} @50 ft.**	Actual L _{max} @100 ft.	Noise Levels with MM NOI- @Sens Rec. (25 ft.)	Noise Levels with MM NOI- @ Sens Rec. (50 ft.)
Air Compressor	84 dBA	78 dBA	72 dBA	79 dBA	73 dBA
Backhoe	84 dBA	78 dBA	72 dBA	79 dBA	73 dBA
Bulldozer	88 dBA	82 dBA	76 dBA	83 dBA	77 dBA
Compactor	89 dBA	83 dBA	77 dBA	84 dBA	78 dBA
Concrete Mixer	85 dBA	79 dBA	73 dBA	80 dBA	74 dBA
Concrete Pump	87 dBA	81 dBA	75 dBA	82 dBA	76 dBA
Crane, Mobile	87 dBA	81 dBA	75 dBA	82 dBA	76 dBA
Dump Truck	82 dBA	76 dBA	70 dBA	77 dBA	71 dBA
Excavator	87 dBA	81 dBA	75 dBA	82 dBA	76 dBA
Generator	87 dBA	81 dBA	75 dBA	82 dBA	76 dBA
Grader*	91 dBA	85 dBA*	79 dBA	86 dBA	80 dBA
Loader, Front End (Forklift)	85 dBA	79 dBA	73 dBA	80 dBA	74 dBA
Paver	83 dBA	77 dBA	71 dBA	78 dBA	72 dBA
Roller	86 dBA	80 dBA	74 dBA	81 dBA	75 dBA
Tractor*	90 dBA	84 dBA*	78 dBA	85 dBA	79 dBA
Truck, Flatbed	80 dBA	74 dBA	68 dBA	75 dBA	69 dBA
Welder	80 dBA	74 dBA	68 dBA	75 dBA	69 dBA

* FHWA model does not have a reference value for “actual measured” for “Grader” or “Tractor” equipment and the “Typical Spec 721.560” value is used instead.

** FHWA reference noise levels (L_{max} @ 50 ft) are derived from empirical measurements incorporated into the FHWA Roadway Construction Noise Model (FWHA, 2006), which is based on original EPA construction equipment noise studies. These data represent point-source emissions measured under free-field, hard-ground conditions, and the conventional 6 dBA per doubling attenuation rate is applied when extrapolating to other distances. Under soft-ground conditions, actual attenuation may be 1–1.5 dBA greater per doubling, though the conservative hard-ground assumption is typically retained to avoid under predicting noise.

Source: Federal Highway Administration. *Road Construction Noise Model*. 2006.

Compliance with Mitigation Measure NOI- would require the installation of temporary acoustic barriers or noise blankets around stationary construction noise sources and along property lines for mobile construction equipment. These barriers must feature weather-protected, sound-absorptive material on the construction-activity side, fully block the line-of-sight between the construction noise source and sensitive receptors, and include a solid face from top to bottom, without any gaps, holes or weaknesses. Barriers may consist of masonry block, ¼ inch glass, earthen berms or a combination of these materials. Existing and proposed landscaping, including mature trees along the north and west property lines, would further buffer adjacent residences. While landscaping does not reduce substantially reduce noise levels, it provides a documented psychological benefit that can reduce perceived noise impacts and community annoyance⁴⁰. As shown in Table 9, implementation of NOI-1 would reduce short-term construction equipment noise levels by a minimum of 5 dBA.

³⁹ U.S. Department of Transportation, Federal Highway Administration (FHWA). *Road Construction Noise Model (RCNM)*. 2006.

⁴⁰ City of Monrovia (2002), *Noise Element*.

To further mitigate short-term construction noise, the Project would implement additional construction-period noise controls. Mitigation Measure NOI-2 requires the use of Tier IV rated construction equipment during demolition, site preparation, grading, and construction activities. Tier IV equipment is generally quieter than older models due to advanced engine and emissions control technologies, which also reduce vibration and improve fuel efficiency. Mitigation Measure NOI-3 requires all construction equipment to be equipped with mufflers and other suitable noise attenuation devices, requires quieter equipment where feasible, requires construction activity notification for nearby residents, and establishes a noise disturbance coordinator to respond to construction noise complaints. Mitigation Measure NOI-4 requires stationary construction equipment, such as pumps, generators, or compressors, to be placed as far from noise-sensitive uses as physically possible, requires the use of electric equipment where available, and limits idling of construction-related equipment. Mitigation Measure NOI-5 limits construction hours to comply with the most restrictive applicable requirements of the City of Monrovia and Los Angeles County. Mitigation Measure NOI-8 further requires stationary noise sources to be located, oriented, screened, or enclosed to block line-of-sight between the noise source and nearby sensitive receptors.

Construction noise would be temporary, intermittent, and would vary by construction phase, receptor distance, and the location of active equipment. The highest short-term noise impacts would generally occur during grading and site preparation, when earthmoving machinery like excavators and bulldozers operate. Typical operating patterns for this equipment often consist of brief bursts of high power (1 to 2 minutes) followed by longer periods at reduced power (3 to 4 minutes). Construction equipment would move throughout the site over the approximately nine-month construction period and would generally operate more than 50 feet from adjacent property lines due to site layout and setbacks. Noise levels would attenuate with distance and fluctuate as construction activities shift across the site. Overall, noise impacts at any nearby receptor would be temporary and would cease upon completion of construction.

The combined noise levels associated with typical construction activities during each phase were evaluated using the FHWA Roadway Construction Noise Model. The resulting cumulative construction noise levels, expressed as L_{eq} , at the nearest sensitive receptors are summarized in Table 10 (Cumulative Construction Noise Levels at the Nearest Sensitive Receptors).

TABLE 10 – CUMULATIVE CONSTRUCTION NOISE LEVELS AT THE NEAREST SENSITIVE RECEPTORS

Construction Phase	Sensitive Receptors to the North and West of the Site	Sensitive Receptors to the North and West of the Site with Barrier (NOI-1)
Site Preparation/Grading	91.3 dBA	86.3 dBA
Building Construction	90.3 dBA	85.3 dBA
Paving	88.2 dBA	83.2 dBA
Architectural Coating	82.1 dBA	77.1 dBA

Source: FHWA (2006), *RCNM*.

As shown in Table 10, implementation of Mitigation Measure NOI-1 would reduce modeled cumulative construction noise levels by approximately 5 dBA through installation of temporary noise barriers. While the barrier reduction alone would not reduce all construction phases below the FTA daytime exterior guideline of 80 dBA L_{eq} or Los Angeles County L_{max} thresholds, the project would also implement additional construction noise controls required by Mitigation Measures NOI-2 through NOI-5 and NOI-8, including Tier IV rated equipment, mufflers and other suitable noise attenuation devices, quieter equipment where feasible, placement of stationary equipment as far from sensitive receptors as practicable, idling restrictions, construction-hour limits, construction notification, and blockage of line-of-sight between noise

sources and sensitive receptors. Based on the modeled barrier reduction presented in Table 10 and the additional qualitative construction noise controls required by Mitigation Measures NOI-2 through NOI-5 and NOI-8, *construction noise impacts would be reduced to less than significant with mitigation incorporated.*

CONSTRUCTION VIBRATION IMPACTS

The construction of the proposed Project will result in the generation of vibration and noise. Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures, soil type, and the age and construction type of nearby buildings. Construction vibration is generally associated with pile driving and rock blasting, vibratory compaction, and heavy earthmoving equipment. Other construction equipment, such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration.⁴¹ To analyze vibration impacts originating from the construction of the project, vibration-generating activities are evaluated against standards established by the FTA and Caltrans. The nearest structures to the Project site are single-family residences and are abutting the site along the north and west property lines.

The Project's construction will not require deep foundations since the underlying fill soils will be removed and the height of the proposed buildings will be limited. The warehouse building would be constructed over a shallow foundation that will extend no more than three to four feet below ground surface (bgs). The use of shallow foundations precludes the use of pile drivers or any auger type equipment. However, other vibration generating equipment may be used on-site during construction such as excavators, loaders, bulldozers, haul trucks and vibratory rollers.

The operation of construction equipment generates ground borne vibrations that propagate outward and generally diminish in amplitude with increasing distance from the source. Ground vibrations associated with construction activities using modern construction methods and well-maintained equipment rarely reach the levels that could cause structural damage. However, vibration may still be perceptible at nearby buildings, particularly within 50 feet of active equipment, and can occasionally be disturbing to sensitive receptors.

Construction vibration impacts are evaluated in two ways: potential human response and potential building damage. Human-response criteria address whether vibration may be perceptible, annoying, or disruptive to nearby residents. Building-damage criteria address whether vibration could result in cosmetic or structural damage to nearby structures. Because these criteria evaluate different effects, they are discussed separately below.

HUMAN RESPONSE TO CONSTRUCTION VIBRATION

The background vibration velocity level in residential areas is usually around 50 vibration velocity level (VdB). The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 70 VdB is the approximately dividing line between barely perceptible and distinctly perceptible levels for many people. Sources within buildings, such as the operation of mechanical equipment, the movement of people, or the slamming of doors, cause the most perceptible indoor vibration.

The FTA provides guidance on assessing short-term, construction-related vibration impacts on people, as shown in Table 11 (Indoor Ground-Borne Vibration Human Response Criteria (FTA)). The FTA identifies the threshold of acceptability for residences and buildings where people normally sleep as 72 VdB for

⁴¹ U.S. Department of Transportation, Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September 2018.

frequent events and 80 VdB for infrequent events⁴². These criteria are presented in terms of acceptable indoor ground-borne vibration levels and are intended to address human perception and annoyance rather than potential structural damage.

TABLE 11 – INDOOR GROUND-BORNE VIBRATION HUMAN RESPONSE CRITERIA (FTA)

Land Use Category	Frequent Events (≥70/day)	Occasional Events (30–70/day)	Infrequent Events (<30/day)
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB	65 VdB	65 VdB
Category 2: Residences and buildings where people normally sleep (e.g., homes, hotels, hospitals)	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use (e.g., schools, churches, offices).	75 VdB	78 VdB	83 VdB

Source: FTA (2018). Table 6-3

With respect to human perception, vibration levels that may cause annoyance are generally below the thresholds associated with structural damage to typical buildings⁴³. Caltrans identifies human response criteria based on PPV and distinguishes between transient and continuous/frequent intermittent sources. For short-term, transient vibration levels of approximately 0.04 in/sec PPV are generally barely perceptible, vibration levels around 0.25 in/sec PPV are distinctly perceptible, and levels of 0.9 in/sec PPV or greater are considered strongly perceptible⁴⁴. For continuous or frequent intermittent sources, the corresponding levels are lower. Table 12 summarizes Caltrans human perception criteria for ground-borne vibration.

TABLE 12 – HUMAN PERCEPTION CRITERIA FOR GROUND-BORNE VIBRATION (CALTRANS)

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack- and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: California Department of Transportation. *Transportation and Construction Vibration Guidance Manual*. September 2013.

POTENTIAL BUILDING DAMAGE FROM CONSTRUCTION VIBRATION

Separate from human response, Caltrans and FTA guidance provide criteria for evaluating the potential for structural or cosmetic building damage. These criteria are distinct from the human-response thresholds discussed above. FTA structural damage screening criteria are summarized in Table 13 (Construction Vibration Damage Criteria (FTA)). Surrounding single-family residences, most of which were constructed in the mid- 20th century and are of non-engineered wood-frame construction, are evaluated under FTA's

⁴² U.S. Department of Transportation, Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September 2018.

⁴³ California Department of Transportation (Caltrans). *Transportation and Construction Vibration Guidance Manual*. September 2013.

⁴⁴ California Department of Transportation (Caltrans). *Transportation and Construction Vibration Guidance Manual*. September 2013.

Category III vibration damage criteria, which identifies a structural damage screening threshold of 0.2 in/sec PPV or approximately 94 Lv VdB.

TABLE 13 – CONSTRUCTION VIBRATION DAMAGE CRITERIA (FTA)

Building/Structural Category	PPV, in/sec	Approximate L _v *
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

Source: U.S. Department of Transportation, Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September 2018.

*RMS velocity in decibels, VdB re 1 micro-in/sec

Caltrans structural damage screening criteria are included in Table 14 and identify maximum PPV levels for different building types and vibration source types. These criteria provide additional guidance for evaluating the potential for structural or cosmetic building damage and are separate from the human perception criteria summarized in Table 12. Transient sources create a single isolated vibration event, such as blasting or drop balls, while continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, vibratory pile drivers, and vibratory compaction equipment.⁴⁵

TABLE 14 – STRUCTURAL DAMAGE SCREENING CRITERIA FOR GROUND-BORNE VIBRATION (CALTRANS)

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack- and seat equipment, vibratory pile drivers, and vibratory compaction equipment.

The nearest structure to the site is a single-family home (209 Novice Lane) approximately 5 feet from the western property line. The anticipated vibration source levels for the construction equipment is shown below in Table 15.

⁴⁵ California Department of Transportation (Caltrans). *Transportation and Construction Vibration Guidance Manual*. September 2013.

TABLE 15 – CONSTRUCTION EQUIPMENT VIBRATION SOURCE LEVELS

Construction Equipment	PPV @25 ft. (inches/sec.)	Vibration Lv (VdB) @ 25 ft.
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Small Bulldozer	0.003	58

Source: FTA (2018).

According to Table 15, under worst-case conditions, vibration levels from vibratory rollers could exceed the 0.2 PPV and 94 Lv structural screening threshold at a distance of 25 feet⁴⁶. Vibratory rollers and other vibration generating equipment could also exceed FTA human-response criteria for residences depending on the frequency, duration, and location of construction activity. However, vibration levels would vary as equipment moves across the site and would be lower for less vibration-creating equipment. Therefore, a tiered buffer zone shall be implemented. Implementation of Mitigation Measure NOI-9 would be required to reduce vibration impacts to a less than significant level.

Mitigation Measure NOI-9: Prior to the start of grading, compaction, or other vibration-generating construction activities, the Project contractor shall submit a Construction Vibration Control Plan to the City Community Development Department for review and approval. The plan shall identify the vibration-generating equipment to be used, anticipated work areas, approximate distances to nearby residential structures, proposed equipment setbacks, and alternative vibration-reduction measures to be implemented where the setback distances identified below cannot be achieved.

During construction activities involving vibration-generating equipment, the contractor shall minimize vibration exposure at nearby residential structures through implementation of the Construction Vibration Control Plan and the following measures, as applicable: (1) equipment operating within 10 feet of the nearest residence shall be limited to a small bulldozer or similar equipment with vibration levels less than 72 VdB; (2) vibratory rollers shall, to the maximum extent feasible, maintain a setback distance of 140 feet from nearby residences; (3) large bulldozers and loaded haul trucks shall, to the maximum extent feasible, maintain a setback distance of 80 feet from nearby residences; and (4) where these setback distances cannot be achieved due to site constraints or required construction activities, the contractor shall utilize alternative vibration-reduction measures, including reduced vibratory settings, smaller or static compaction equipment, phased operations, or limiting simultaneous operation of vibration-generating equipment near sensitive receptors. The contractor shall document the vibration-reduction measures implemented during grading and compaction activities and shall make such documentation available to the City upon request.

During the grading phase of construction, vibration resulting from the operation of haul trucks may affect the residents located north and west of the project site. Strict adherence to the mitigation measure NOI-10 will reduce the potential impact on the residences potentially affected by ground borne vibration generated by haul trucks:

Mitigation Measure NOI-10: Loaded and unloaded haul trucks over 7 tons are prohibited from

⁴⁶ U.S. Department of Transportation, Federal Transit Administration (FTA). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September 2018.

travelling north on California Avenue from the site. All trucks must follow adopted truck routes. No construction vehicles are permitted to use Novice Lane to exit or enter from Myrtle Avenue.

Adherence to Mitigation Measures NOI-9 and NOI-10 will reduce potential construction vibration impacts, including potential human annoyance and structural damage impacts, to levels that are less than significant.

8. OPERATIONAL (LONG-TERM) NOISE AND VIBRATION IMPACTS

STATIONARY NOISE IMPACTS

Stationary noise sources associated with the Project could include heating, ventilation, and air conditioning (HVAC) mechanical equipment, truck delivery loading/unloading activities, and typical motor vehicle/parking area activities. In order to assess permanent noise levels from on-going activities on-site, a reference noise level measurement for loading dock activities was collected to represent the truck idling/reefer activity at a neighboring receiving dock next to the offices of Blodgett Baylois Environmental Planning. This was chosen due to similar type of activity, i.e. truck idling, truck backing, etc. The truck observed during the measurement period is a single 5-axle semi-truck, which would be similar or the same type of vehicle used to deliver to the site. The truck idling activity reference noise level measurement was taken adjacent to the parking position with a direct line of site. During the measurement period, the recorded noise levels were 65.2 dBA at a uniform distance of 50 feet. This represents a worst case since the line of sight between the proposed Project's loading docks and the homes would be obstructed by the new building. The distance between the receiving area and the homes would be at least 127 feet with no direct line of sight. The new building will be located between the new receiving areas (loading docks and truck maneuvering area) and the existing homes. As a result, the new building will attenuate the loading dock noise impacts on the existing homes. Additionally, the two primary truck receiving areas are located within a recessed loading area located along the building's south elevation, separated from the homes to the north of the site by the proposed 33-foot-high building. Moreover, the new Project's hours of operation will be limited so that after hours operations do not affect the noise sensitive receptors in the area (see Mitigation Measures NOI-6 and 7).

There is also a trash enclosure on site, which includes loading and unloading associated with waste disposal. However, such activities would take place over 225 feet from the closest sensitive receptor to the west. While this noise exposure could exceed ambient noise levels, the handling of boxes, crates, garbage bins or other similar objects is exempt from the provisions of the City's Municipal Code during the hours of 7:00 a.m. and 7:00 p.m. (Section 9.44.080, Exemptions, of the City's Municipal Code). Additionally peak noise levels from loading and unloading are expected to be intermittent, and averaged over a 1-hour period, would be much lower than peak levels. Implementation of Mitigation Measures NOI-6 through 8 would restrict operations for delivery, truck idling and waste disposal, thereby reducing impacts to a less than significant level. Furthermore, the Project would be required to adhere to the provisions established in Mitigation Measure NOI-8, which itself requires that the line-of-site between stationary noise sources (e.g., HVAC equipment and loading docks) and noise-sensitive uses be blocked through the implementation of noise barriers (i.e., a concrete block wall or enclosing the noise source). Adherence with Mitigation Measure NOI-8 would further ensure that the proposed Project would not substantially increase noise levels over existing conditions and impacts to adjacent sensitive receptors would be less than significant with mitigation incorporated.

ONSITE EQUIPMENT NOISE IMPACTS

Another operational noise source would be exterior mechanical equipment on the roof which would be screened by a four foot tall parapet. Precise details of any HVAC equipment, including future location and sizing, are unknown at this time. However, the reference noise level from a Lennox SCA120 series 10-ton model packaged air conditioning unit on a roof is appropriate as it is one of the most common units currently in use for a comparable uses. At 5 feet from the air conditioning unit, the exterior noise levels were measured at 77.2 dBA. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA. Based on the typical operating conditions observed over a four-day measurement period, the rooftop air conditioning units are estimated to operate for an average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. Therefore, HVAC would not create noise levels that exceed the median ambient noise levels on the Project site.

Forklift noise can be generated three primary sources: 1. engine noise from the forklift, 2. noise from the hydraulic lift motors, and 3. noise from the back-up alarms. Gas forklifts generally produce noise levels that can vary depending on several factors, including the specific model, engine design, age, maintenance, and operating conditions. When a gas forklift is idling, the noise level typically ranges from 60 to 70 dB at 50 feet from the source. During normal operation, the noise level of a gas forklift can range from 80 to 90 dB. Backup alarms generally range from 87 to 112 dBA and can be approximately 80.2 dBA to 55.2 dBA at 50 feet from the source. Given the relatively small size of the warehouse floor area, a limited number of forklifts would be used. Instead, pallet jacks would be employed to eliminate the need for forklift equipment. Finally, the use of forklifts would be used during normal business hours and inside the building.

TRAFFIC NOISE IMPACTS

Changes in traffic noise levels are generally considered perceptible to the human ear when they range between 3.0 dBA and 5.0 dBA, which typically corresponds to a doubling of traffic volumes on a given roadway. The proposed warehouse use, based on Institute of Transportation Engineers (ITE) Land Use Code 150 – Warehousing, is anticipated to generate approximately 45 daily trips using the average trip rate, including 8 trips during the AM peak hour, and 9 trips during the PM peak hour. While this represents the average trip rate from ITE, when using the regression rate, which generates more trips, the amount is still insignificant. According to the ITE, approximately 20% of these trips (about 9 daily trips) would consist of heavy trucks.

Project access would occur from California Avenue via Novice Lane, with project traffic expected to use California Avenue and Myrtle Avenue to reach regional destinations.⁴⁷ According to the City of Monrovia Noise Element, average daily traffic (ADT) volumes are approximately 7,242 vehicles on California Avenue between Duarte Road and the Southern City limit and 23,449 vehicles on Myrtle Ave between Duarte Road and the Southern City limit. The addition of 45 daily project trips would represent approximately 0.62 percent (0.62%) of existing traffic on California Avenue and 0.19 percent (0.19%) of existing traffic on Myrtle Avenue. This would result in a traffic noise increase of less than 0.1 dBA, which is well below the 3 dBA perceptibility threshold and FICON increase thresholds. Therefore, project-generating vehicle traffic would not result in a measurable or perceptible increase in roadway noise levels along California Avenue or Myrtle Avenue.

⁴⁷ Institute of Transportation Engineers (ITE). *Trip Generation Manual*, 11th Edition. September 2021.

Truck activity would also be limited and intermittent, with approximately nine truck trips expected per day. In accordance with Mitigation Measure NOI-7 and NOI-10, truck access would be restricted to California Avenue, and trucks would be prohibited from using Myrtle Avenue to access the Project site. Given the limited number of truck trips, the intermittent nature of truck activity, and required truck access controls, project-related truck traffic would not contribute a sustained increase in ambient roadway noise.

According to the City's Noise Element, the existing 60 dBA CNEL contour along California Avenue, between Duarte Road to the Southern City limit, extends approximately 129 feet from the roadway centerline, and the 55 dBA CNEL contour extends 383 feet. Along Myrtle Avenue the 70 dBA CNEL 65 dBA, 60 dBA, and 55 dBA CNEL contours extend 65 feet, 170 feet, 490 feet, and 1,291 feet, respectively, based on existing ADT volumes. The Project site would fall within the 60 dBA noise contour on these roadways. The area within this contour represents areas of equal noise exposure and represents an existing noise level to compare to. Given the minimal traffic contribution from project operations, the proposed development would not cause a measurable increase in existing traffic noise levels. Therefore, traffic noise impacts would be less than significant.

VIBRATION NOISE IMPACTS

Future proposed land uses within the Project would not be anticipated to generate significant levels of vibration since the proposed Project involves the development of a warehouse. The primary source of operational ground borne vibration would be vehicle traffic on the internal drive aisle and adjacent streets. As shown in Table 15, a fully loaded truck traveling on the drive aisle would generate 0.076 PPV at 25 feet, which is below the 0.2 PPV structural screening threshold for non-engineered timber and masonry residential structures. Truck travel would also be intermittent, with approximately nine truck trips expected per day. As previously mentioned, Project traffic would not be significant enough to result in a doubling of traffic volumes along local streets and would not result in a measurable increase in vibration levels. *Therefore, operational vibration impacts would be less than significant, and no mitigation is required.*

9. RECOMMENDED MITIGATION MEASURES

The following mitigation measures focus on ways to further reduce construction noise levels at the nearest sensitive receptors so that the impacts would be less than significant:

Mitigation Measure NOI-1. Installation of a temporary sound barrier at the property lines of the proposed Project site to mitigate noise impacts on all surrounding properties. Temporary noise barriers shall achieve a minimum of 5 dBA reduction in construction noise. The noise barrier shall include the following:

- The noise control barriers must present a solid face from top to bottom.
- The noise barriers shall be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired.

The temporary noise barrier shall be constructed using one of the following materials with no decorative cutouts or line-of-sight openings between shielded areas and the noise source:

- Masonry block;
- Glass (1/4-inch-thick), or other transparent material with sufficient weight per square foot;
- Earthen berm;
- Any combination of these construction materials.

In addition, the contractor shall install temporary acoustic barriers or noise blankets achieving a minimum reduction of 5 dBA around stationary construction noise sources. These barriers shall be made featuring weather-protected, sound-absorptive material on the construction-activity side of the noise barrier and must be installed in a location that completely blocks line-of-sight between the construction noise source and adjacent sensitive receptors. The contractor shall maintain all barriers in compliant condition throughout construction. To promote effective practices, the contractor shall position construction equipment staging areas and stationary noise sources as far from those nearby receptors as possible (e.g. in the southeastern portion of the Project site on Novice Lane). Additionally, the contractor will prohibit idling of equipment, and will notify adjacent residences in advance of construction work.

Mitigation Measure NOI-2. The use of Tier IV rated construction equipment must be used during grading, site preparation, construction and paving activities. Prior to issuance of the first building permit, the applicant shall submit manufacturer data sheets demonstrating compliance with Tier IV Final or equivalent noise performance.

Mitigation Measure NOI-3. To reduce temporary construction noise impacts on adjacent residential uses, the applicant or the applicant's construction contractor shall implement the following construction-period noise abatement measures, as outlined in Mitigation Measures NOI-C through F of the City of Monrovia General Plan Proposed Land Use and Circulations Elements Environmental Impact Report (2008).

- All construction equipment shall be equipped with mufflers and other suitable noise attenuation devices.

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- Grading and construction contractors shall use quieter equipment as opposed to noisier equipment (such as rubber-tired equipment rather than track equipment).
- Construction Activity Notification: All residential units located within 500 feet of the construction site shall be sent a notice at least two weeks in advance of construction activity regarding construction times. A sign shall provide local contact information and be placed at the construction site so that it is legible at a distance of 50 feet and in prominent locations along the Novice Lane and California Avenue frontages along the project site's boundaries. All notices and signs shall indicate the dates and duration of construction activities, and shall include the name and phone number of the contact person at both the construction site and at the City's Code Enforcement office where residents may call to register a complaint about noise.
- Noise Disturbance Coordinator: A "noise disturbance coordinator" shall be established by the applicant. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall be required to implement reasonable measures such that the complaint is resolved. Upon receipt of a complaint, the contractors must stop work to inspect their equipment to ensure that it is properly tuned and muffled. Construction activities may not resume until the equipment is replaced and/or repaired with newer and quieter Tier IV equipment. In addition, copies of all complaints and subsequent communication between the affected residents and contractors must be forwarded to the City's Community Development Director.
- Construction Traffic: Route all construction traffic to and from the construction site via designated truck routes to the maximum extent feasible. Prohibit construction-related heavy truck traffic in residential areas where feasible.

Mitigation Measure NOI-4. The Project developer shall require that the following construction measures be implemented by contractors to reduce construction noise levels below the established thresholds:

- Stationary construction equipment, such as pumps, generators, or compressors, must be placed as far from noise sensitive uses whenever physically possible during all phases of Project construction.
- Use electric air compressors and similar power tools rather than diesel equipment shall be used, whenever such equipment is available.
- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, must be turned off when not in use for more than 30 minutes.

Mitigation Measure NOI-5. In consideration of requirements from the City of Monrovia and the County of Los Angeles, construction shall be prohibited from taking place from 7:00 PM to 7:00 AM, Monday through Friday, from 6:00 PM to 9:00 AM on Saturdays, and at any time on Sundays or holidays.

Mitigation Measure NOI-6. The loading and receiving area shall be closed after business hours to restrict noise impacts related to these activities (back-up alarms, roll-up doors, fork-lifts, etc.) on the adjacent homes. The hours for truck deliveries shall only be permitted during the business's normal hours of operations as established by the CUP or by the Development Review Committee upon selection of a specific tenant. The City Code prohibits operations occurring between 12:00 AM and 6:00 AM.

Mitigation Measure NOI-7. Truck deliveries would be limited to accessing the site to and from California Avenue. Only emergency vehicles are allowed access to the gate from Novice Lane to Myrtle Avenue.

Mitigation Measure NOI-8. Stationary Noise Sources. During construction activities and operational activities, the Project shall comply with Mitigation Measure NOI-A of the City of Monrovia General Plan Proposed Land Use and Circulations Elements Environmental Impact Report (2008) to further reduce noise emitted from stationary noise sources on the Project site. As required by Mitigation Measure NOI-A, stationary noise sources associated with the operation of future non-residential uses (e.g., mechanical equipment and loading docks) within the Project areas shall not have a direct line-of-sight to noise sensitive uses. The line-of-sight between the noise source and noise sensitive receptor shall be blocked through the orientation of the non-residential land use and/or by using noise barriers, such as a concrete block wall or enclosing the noise source. The Project Developer shall submit documentation to the City Community Development Department, or designee, demonstrating that noise-reducing measures have been implemented in the Project Design.

Mitigation Measure NOI-9: Prior to the start of grading, compaction, or other vibration-generating construction activities, the Project contractor shall submit a Construction Vibration Control Plan to the City Community Development Department for review and approval. The plan shall identify the vibration-generating equipment to be used, anticipated work areas, approximate distances to nearby residential structures, proposed equipment setbacks, and alternative vibration-reduction measures to be implemented where the setback distances identified below cannot be achieved.

During construction activities involving vibration-generating equipment, the contractor shall minimize vibration exposure at nearby residential structures through implementation of the Construction Vibration Control Plan and the following measures, as applicable: (1) equipment operating within 10 feet of the nearest residence shall be limited to a small bulldozer or similar equipment with vibration levels less than 72 VdB; (2) vibratory rollers shall, to the maximum extent feasible, maintain a setback distance of 140 feet from nearby residences; (3) large bulldozers and loaded haul trucks shall, to the maximum extent feasible, maintain a setback distance of 80 feet from nearby residences; and (4) where these setback distances cannot be achieved due to site constraints or required construction activities, the contractor shall utilize alternative vibration-reduction measures, including reduced vibratory settings, smaller or static compaction equipment, phased operations, or limiting simultaneous operation of vibration-generating equipment near sensitive receptors. The contractor shall document the vibration-reduction measures implemented during grading and compaction activities and shall make such documentation available to the City upon request.

Mitigation Measure NOI-10. Loaded and unloaded haul trucks over 7 tons are prohibited from travelling north on California Avenue from the site. All trucks must follow adopted truck routes. No construction vehicles are permitted to use Novice Lane to exit or enter from Myrtle Avenue.

As summarized in Table 16 (Summary Findings), the project would implement Mitigation Measures NOI-1 through NOI-10 to reduce construction and operational noise and vibration impacts. For construction noise, Table 10 quantifies the reduction associated with NOI-1, while the less than significant with mitigation conclusion also relies on the additional qualitative controls required by NOI-2 through NOI-5 and NOI-8. These include the installation of temporary sound barriers, use of Tier IV Final equipment, and restricted construction hours consistent with both Monrovia and Los Angeles County noise ordinances. Operational activities, including limited truck trips, restricted loading activity, truck access controls, and

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screened stationary equipment, would be controlled through NOI-6 through NOI-8. Therefore, construction and operational noise and vibration impacts would be less than significant with mitigation incorporated.

TABLE 16 – SUMMARY FINDINGS

Impact Type	Jurisdiction	Metric	Threshold	Project Level (without Mitigation)	Mitigation	Result
Construction Noise	Monrovia	L _{eq} (1-hr)	- 80 dBA L _{eq} or +12 dBA increase over ambient	Unmitigated construction noise would range from 82.1 to 91.3 dBA L _{eq} , depending on construction phase	MM NOI-1 through NOI-5, NOI-8	Less than Significant with Mitigation
	Los Angeles County	L _{max} L _{eq} (1-hr)	- Mobile: 75 dBA L _{max} - Stationary: 60 dBA L _{max} - 80 dBA L _{eq} or +12 dBA increase over ambient	- Unmitigated construction noise would range from 82.1 to 91.3 dBA L _{eq} - Individual equipment and cumulative construction noise could exceed thresholds before mitigation	MM NOI-1 through NOI-5, NOI-8	Less than Significant with Mitigation
Operational Noise	Monrovia	L _{eq} CNEL L ₅₀	- Daytime: 55 dBA or L ₅₀ - Nighttime: 50 dBA or L ₅₀ - FICON Increase Thresholds	- Loading dock reference noise was 65.2 dBA at 50 ft; - HVAC reference noise was 57.2 dBA at 50 ft - Operational noise would be reduced by building placement, screening, and operational limits	MM NOI-6, NOI-7, NOI-8	Less than Significant with Mitigation
	Los Angeles County	L _{eq} CNEL L ₅₀	- Daytime: 50 dBA or L ₅₀ - Nighttime: 45 dBA or L ₅₀ - County percentile standards - FICON Increase Thresholds	- Loading dock reference noise was 65.2 dBA at 50 feet - HVAC reference noise was 57.2 dBA at 50 feet - County receptors are subject to stricter standards, with controls on loading hours, truck access, and screening.	MM NOI-6, NOI-7, NOI-8	Less than Significant with Mitigation
Construction Vibration	Both Jurisdictions	VdB / PPV	- Human Response: 72-80 VdB - Structural Screening: 0.2 PPV / 94 VdB	Vibratory rollers could generate up to 0.21 PPV / 94 VdB at 25 feet.	MM NOI-9, NOI-10	Less than Significant with Mitigation
Operational Vibration	Both Jurisdictions	PPV	- Structural Screening: 0.2 in/sec PPV - Human response considered qualitatively/intermittently	- A fully loaded truck would generate approximately 0.076 PPV at 25 feet below the structural screening threshold. - Truck activity would be intermittent	None required.	Less than Significant
Mobile Traffic	Monrovia	CNEL	- 3 dBA perceptible - FICON Increase Thresholds	Project traffic would add approximately 45 daily trips, resulting in a traffic noise increase of less than 0.1 dBA, well below the 3 dBA perceptibility threshold and FICON thresholds.	None required	Less than Significant

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Project Name	Location	Date	Time of Noise Measurement	Project Name	Location	Date	Time of Noise Measurement
MONR 003	South	27-Oct-25	9:30 AM	MONR 003	North	27-Oct-25	9:40 AM
Noise Meter Readings (SORTED):	Comments	Maximum Value:	69.8	Noise Meter Readings (SORTED):	Comments	Maximum Value:	70.1
69.8		L99:	67.4	70.1		L99:	66.4
67.4		L90:	64.4	66.4		L90:	62.9
66.0		L75:	59.0	65.9		L75:	57.2
65.7		Median:	54.5	65.2		Median:	50.5
65.6		Minimum Value:	50.0	63.9		Minimum Value:	46.9
65.2		Average:	55.8	63.4		Average:	52.8
65.1				63.2			
64.8				63.2			
64.8				63.2			
64.4				62.9			
64.4				62.3			
64.3				61.2			
64.3				60.6			
64.1				60.5			
63.9				59.5			
62.8				59.3			
62.4				59.1			
62.1				58.7			
61.9				58.2			
61.8				57.9			
61.0				57.6			
59.2				57.3			
59.0				57.2			
58.5				56.9			
58.5				56.8			
58.2				55.7			
58.1				55.6			
57.5				55.4			
57.3				55.1			
57.0				55.0			
56.8				54.7			
56.8				54.6			
56.8				54.1			
56.8				53.3			
56.4				52.9			
56.3				52.6			
56.1				52.5			
55.8				52.4			
55.7				52.2			
55.7				52.2			
55.6				51.3			
55.2				51.3			
54.7				50.9			
54.7				50.8			
54.7				50.8			
54.7				50.7			
54.6				50.6			
54.6				50.5			
54.6				50.5			
54.6				50.5			
54.4				50.4			
54.3				50.3			
54.3				50.3			
53.7				50.2			
53.7				50.2			
53.7				50.0			
53.7				49.9			
53.6				49.9			
53.5				49.9			
53.3				49.8			
53.2				49.7			
53.2				49.5			
53.0				49.1			
52.9				49.1			
52.8				49.0			
52.7				49.0			
52.6				48.9			
52.6				48.9			
52.5				48.8			
52.4				48.7			
52.4				48.6			
52.0				48.6			
51.9				48.5			
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51.8				48.4			
51.7				48.4			
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51.3				48.1			
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Project Name	Location	Date	Time of Noise Measurement	Project Name	Location	Date	Time of Noise Measurement
MONR 003	West	13-Mar-26	9:25 AM	MONR 003	Southwest	13-Mar-26	9:40 AM
Noise Meter Readings (SORTED):	Comments	Maximum Value:	63.5	Noise Meter Readings (SORTED):	Comments	Maximum Value:	66.3
63.5	Plane	L99:	61.5	66.3		L99:	65.8
61.5	Plane	L90:	54.1	65.8		L90:	62.3
56.5		L75:	52.3	65.6		L75:	59.4
56.2		Median:	50.4	65.1		Median:	57.8
56.0		Minimum Value:	44.4	64.4		Minimum Value:	48.8
55.5		Average:	51.1	64.1		Average:	57.6
55.1				63.3			
54.8				63.2			
54.7				63.0			
54.1				62.3			
54.0				62.2			
53.7				62.1			
53.6				60.4			
53.5				60.2			
53.5				60.1			
53.4				60.1			
53.3				60.1			
53.3				60.1			
53.2				60.0			
53.0				59.8			
52.8				59.7			
52.4				59.6			
52.3				59.4			
52.2				59.4			
51.5				59.3			
51.5				59.1			
51.3				59.1			
51.2				59.1			
51.1				59.1			
51.1				59.1			
51.1				59.0			
51.1				59.0			
51.0				58.9			
50.9				58.9			
50.9				58.9			
50.9				58.7			
50.8				58.6			
50.8				58.4			
50.8				58.4			
50.8				58.2			
50.7				58.2			
50.7				58.1			
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50.5				57.9			
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50.2				57.0			
50.1				56.9			
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49.9				56.6			
49.9				56.6			
49.8				56.5			
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49.8				56.3			
49.7				56.3			
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49.7				56.1			
49.7				56.0			
49.6				55.8			
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