VALLARTA MARKET PLACE SHOPPING CENTER PROJECT PERRIS, CALIFORNIA

Noise Study

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VALLARTA MARKET PLACE SHOPPING CENTER PROJECT
PERRIS, CALIFORNIA
NOISE STUDY

This report is an analysis of the potential noise impacts associated with the proposed Vallarta Market Place Shopping Center Project in the City of Perris, California. This report has been prepared by Birdseye Planning Group (BPG) under contract to the applicant, to support preparation of the environmental documentation pursuant to the California Environmental Quality Act (CEQA). This study analyzes the potential for temporary air quality and greenhouse gas impacts associated with construction activity and long-term impacts associated with operation of the proposed project.

PROJECT DESCRIPTION

The Project site is located at the southeast corner of Placentia Avenue and North Perris Boulevard and is comprised of approximately 10.55 acres. It is located approximately 0.9 miles east of Interstate 215 (I-215), approximately 8.3 miles south of State Route (SR-) 60 and approximately 1.3 miles south of March Air Reserve Base/Inland Port Airport (MARB/IPA).

With approval of a Conditional Use Permit and Design Plan Review, the Vallarta Market Place Community Shopping Center (Project) project would construct and operate a total of eight new commercial/retail buildings on a 10.55-acre site located at the southeast corner of Placentia Avenue and North Perris Boulevard. The site is located approximately 0.9 miles east of Interstate 215 (I-215), approximately 8.3 miles south of State Route (SR-) 60 and approximately 1.3 miles south of March Air Reserve Base/Inland Port Airport (MARB/IPA). The project site is vacant, disturbed agricultural land and located within Planning Area 5, designated Community Commercial in the Perris General Plan and zoned Community Commercial. The following describes each of the three project components and addresses on-site improvements that would be required to accommodate the proposed uses. The site location is shown in Figure 1 and the proposed site plan is shown in Figure 2.

Vallarta Supermarket. The Project applicant would construct and operate a new 59,371 square-foot grocery store/supermarket along the eastern portion of the site. One delivery dock would be located at the rear of the building (east side). Pursuant to Section 5.106.5.5.1 of the 2022 California Green Building Standards (CALGreen) Code, raceways, busways, and additional electrical capacity for transformers, service panels, or subpanels would be provided to facilitate the future installation of electric vehicle supply equipment for medium- and heavy-duty electric delivery trucks

Figure 1

Figure 2

Junior Anchor Building. A 15,593-square-foot retail building would abut the supermarket building to the south. This would be a single-story building with parking and delivery provided at the rear of the building (east side).

Convenience Store/Fueling Station. A 4,913-square-foot convenience store and fueling station would be located at the northwest corner of the site. A total of 8 fueling positions and 16 pumps would be constructed. A total of 14 parking spaces would be located proximal to the convenience store to provide employee, customer and vendor parking.

Coffee Quick Service Restaurant . A 2,367-square-foot quick service restaurant (QSR) dine-in/drive-thru coffee shop building would be constructed adjacent to and south of the convenience store buildings. The drive-thru menu board and pick-up window would be located along the west side of the building facing North Perris Boulevard. Eight parking spaces for QSR Building 1 would be on the east side of building.

Quick Service Restaurant Building 2. A 2,079-square-foot QSR building would be constructed along the western side boundary, south of the Coffee QSR building. The drive-thru menu board and pick-up window would be located along the west side of the building facing North Perris Boulevard. A total of five parking spaces and one accessible space would be provided in front (east side) of the building. The remainder of parking would be provided in the adjacent parking lot.

Quick Service Restaurant Building 1. A 2,621 square-foot QSR building would be constructed along the western side boundary at the southwest corner of the site, south of the QSR building 1 The drive-thru menu board and pick-up window would be located on the south side of the building. A total of eight parking spaces and two accessible spaces would be provided on the east side of the building. A total of seven spaces would be provided on the north side of the building. The remainder of parking would be provided in the adjacent parking lot.

Retail Building 1. A 7,520-square-foot retail building would abut the supermarket building to the north. This would be a single-story building with parking and delivery provided at the rear of the building (east side).

Retail Building 2.A 7,000 square foot retail building would located near the northeast corner of the site, north of the supermarket building. This would be a single-story building with parking and delivery provided at the front (south side) and east side of the building.

Site Access. A total of six access driveways would be constructed – three along Placentia Avenue and three along Perris Boulevard. One driveway along Placentia Avenue and one driveway along Perris Boulevard would be two -lane ingress/egress access. Two additional driveways along Placentia Avenue and two driveways along Perris Boulevard would provide

single-lane access. Delivery vehicles for the grocery store and retail buildings would use the driveways at the northeast and southwest corners of the site.

A total of 489 parking spaces are proposed. The total would include 18 accessible spaces. Pursuant to Section 5.106.5.3.1 of the 2022 CALGreen Code, at least 70 electric vehicle (EV) capable parking spaces would be provided while at least 26 of these spaces, including one ADA space would provide EV chargers at the time that the Project begins operations. More chargers would be added in the future based on demand.

Operating Hours. The proposed supermarket would operate between the hours of 7:00 a.m. and 10:00 p.m. during which time, all daily deliveries would occur. No deliveries would occur outside of business hours. The retail stores are expected to operate during normal daytime/evening business hours. No quick service restaurant tenants have been identified at this time so the operating hours are unknown. It is assumed that the quick service restaurants would not operate 24-hours per day. The convenience store and fueling station could operate 24 hours per day.

Construction Characteristics

Construction is expected to begin in mid-2025 and be completed by late 2026 (approximately 18 months). The project is likely to be constructed in multiple phases based on market demand; however, for the purpose of this evaluation, it is assumed that all constructed would occur during one phase. Construction activity is regulated by the City's Municipal Code, Section 7.34.060, which allows construction activities during daytime hours (between the hours of 7:00 am and 7:00 pm), Monday through Saturday, except for legal holidays. Construction equipment is expected to operate on the Project site up to eight hours per day during the allowed days and time period; however, the typical working hours for most construction contractors are 7:00 a.m. to 4:00 p.m. and construction equipment is not in continual use. Rather each piece of equipment is used only periodically during a typical construction workday. Should construction activities need to occur outside of the hours permitted by the Municipal Code, the applicant would be required to obtain authorization from the City of Perris. Should on-site concrete pouring activities need to occur at night to facilitate proper concrete curing, nighttime work would typically occur between the approximate hours of 2:00 am and 8:00 am. Construction workers would travel to the Project site by passenger vehicle and materials deliveries would occur by medium- and heavy-duty trucks. Construction of the Project would require common construction equipment.

SETTING

Overview of Sound Measurement

Noise level (or volume/loudness) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).
Sound pressure level is measured on a logarithmic scale with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dBA, and a sound that is 10 dBA less than the ambient sound level would be half as loud and influence the character of ambient noise without influencing the overall sound level. Because of the nature of the human ear, a sound must be about 10 dBA greater than the reference sound to be judged as twice as loud. In general, a 3 dBA change in community noise levels is noticeable, while 1-2 dB changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while arterial streets are in the 50-60+ dBA range. Normal conversational levels are in the 60-65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations. Noise levels typically attenuate (or drop off) at a rate of 6 dBA per doubling of distance from point sources (i.e., industrial machinery). Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed (approximately 30 years old or older) generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units and office buildings construction to California Energy Code standards is generally 30 dBA or more (FTA 2018).

In addition to the actual instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound pressure level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period. Lmax is the highest RMS (root mean squared) sound pressure level within the measuring period, and Lmin is the lowest RMS sound pressure level within the measuring period.

The time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the day. Community noise is usually measured using Day-Night Average Level (Ldn), which is the 24-hour average noise level with a 10-dBA penalty for noise occurring during nighttime (10 p.m. to 7 a.m.) hours, or Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a 5 dBA penalty for noise occurring from 7 p.m. to 10 p.m. and a 10 dBA penalty for noise occurring from 10 p.m. to 7 a.m. Noise levels described by Ldn and CNEL usually do not differ by more than 1 dB. Table 1 shows sounds levels of typical noise sources in Leq.

Table 1. Sound Levels of Typical Noise Sources and Noise Environments

Noise Source (at Given Distance)	Noise Environment	A-Weighted Sound Level (Decibels)	Human Judgment of Noise Loudness (Relative to Reference Loudness of 70 Decibels*)
Military Jet Takeoff with Afterburner (50 ft)	Carrier Flight Deck	140	128 times as loud
Civil Defense Siren (100 ft)		130	64 times as loud
Commercial Jet Take-off (200 ft)		120	32 times as loud **Threshold of Pain**
Pile Driver (50 ft)	Rock Music Concert Inside Subway Station (New York)	110	16 times as loud
Ambulance Siren (100 ft) Newspaper Press (5 ft) Gas Lawn Mower (3 ft)		100	8 times as loud **Very Loud**
Food Blender (3 ft) Propeller Plane Flyover (1,000 ft) Diesel Truck (150 ft)	Boiler Room Printing Press Plant	90	4 times as loud
Garbage Disposal (3 ft)	Noisy Urban Daytime	80	2 times as loud
Passenger Car, 65 mph (25 ft) Living Room Stereo (15 ft) Vacuum Cleaner (10 ft)	Commercial Areas	70	Reference Loudness **Moderately Loud**
Normal Speech (5 ft) Air Conditioning Unit (100 ft)	Data Processing Center Department Store	60	½ as loud
Light Traffic (100 ft)	Large Business Office Quiet Urban Daytime	50	¼ as loud

Bird Calls (distant)	Quiet Urban Nighttime	40	1/8 as loud **Quiet**
Soft Whisper (5 ft)	Library and Bedroom at Night Quiet Rural Nighttime	30	1/16 as loud
	Broadcast and Recording Studio	20	1/32 as loud **Just Audible**
		0	1/64 as loud **Threshold of Hearing**

Source: Compiled by dBF Associates, Inc., 2016

Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Urban areas contain a variety of land use and development types that are noise sensitive including residences, schools, churches, hospitals and convalescent care facilities. Nearby sensitive receptors are single-family residences located adjacent to and east and south of the site and north of the site on the north side of Placentia Avenue.

Project Site Setting

The project area is urbanizing and located along the east side of North Perris Boulevard and south of Placentia Avenue. As stated, single-family residences are located east, north and south of the site. The most common and primary sources of noise in the project site vicinity are motor vehicles (e.g., automobiles and trucks) operating on Placentia Avenue and North Perris Boulevard. Motor vehicle noise, because of the high number of individual events, can create a sustained noise level. To gather data on the general noise environment at the project site, two weekday morning 15-minute noise measurements were taken on the site on August 22, 2023 using an ANSI Type II integrating sound level meter. The predominant noise source was traffic. The temperature during the monitoring episode was approximately 85 degrees Fahrenheit with wind at 0-5 mph from the northwest.

Monitoring Site 1 is located at the northeast corner of the site adjacent to the single-family residences on the west side of Genuine Risk Street approximately 60 feet south of the Placentia Avenue centerline. During monitoring, approximately 172 cars/light trucks, three medium trucks (six tires/two axles) and zero heavy trucks (all vehicles with three or more axles) passed the site. Monitoring Site 2 is located on the southwest corner of the site, east of North Perris Boulevard and north of the single-family residences located on the north side of Chant Street. During monitoring, approximately 327 cars/light trucks, nine medium trucks and zero heavy trucks passed the site. The monitoring location is shown in Figure 3. As shown in Table 2, the measured Leq was 63.1 dBA at Site 1 and 63.4 dBA at Site 2. The monitoring data sheet is provided in Appendix A.

Figure 3

Table 2
Noise Monitoring Results

Measurement Location	Primary Noise Source	Sample Time	Leq (dBA)
Site 1. Northeast corner of site south of Placentia Avenue and west of the residences located along Genuine Risk Street.	Traffic	August 22, 2023 2:00 -2:15 p.m.	63.1
Site 2. Southwest corner of the site adjacent to North Perris Boulevard and north of residences located along Chant Street.	Traffic	August 22, 2023 2:30–2:45 p.m.	63.4

Source: Field visit using ANSI Type II Integrating sound level meter.

Noise Standards and Policies

City of Perris General Plan Noise Element

In 1976, the California Department of Health, State Office of Noise Control published a recommended noise/land use compatibility matrix which many jurisdictions have adopted as a standard in their general plan noise elements. The California State Office of Planning and Research 2017 updates to the General Plan Guidelines, Appendix D Noise Element Guidelines, Table 1, shows that exterior noise levels up to 60 dBA (CNEL or Ldn) are normally compatible for low density single-family residences, duplexes and mobile homes. The term "normally acceptable" refers to compatibility with the ambient outdoor noise environment for the land use type referenced such that interior noise levels are adequately attenuated without implementation of specific noise reduction measures. Whereas, "conditionally acceptable" refers to exterior ambient conditions that require the use of construction materials and methods or mitigation to achieve interior noise standards for the specified land use type.

Based on these metrics, the City of Perris General Plan Noise Element (City 2016) establishes noise compatibility guidelines for land uses and provides policies for new commercial and industrial facilities. Noise Element Policy V.A states that new large-scale commercial or industrial facilities located within 160 feet of sensitive land uses shall mitigate noise impacts to attain an acceptable level. This policy is enforced through Implementation Measure V.A.1 which requires that an acoustical impact analysis be prepared to ensure that noise levels generated by the commercial or industrial facilities do not exceed 60 CNEL for those residential land uses within 160 feet of the project. Exhibit N-1 of the City General Plan Noise Element is replicated in Table 3. Consistent with state guidelines, noise levels at single-family residences and mobile homes, are normally acceptable up to 60 dBA CNEL and conditionally acceptable up to 70 dBA CNEL.

Table 3
Land Use Compatibility for Community Noise Environments

Land Use	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-Family, Duplex, Mobile Homes	50-60	60-65	65-75	75-85
Multifamily	50-60	60-65	65-75	75-85
Transient Lodging – Hotels, Motels	50-60	60-70	70-80	80-85
School, Libraries, Churches, Hospitals, Nursing Homes	50-60	60-70	70-80	80-85
Auditoriums, Concert Halls, Amphitheaters	-	50-65	-	65-85
Sports Arena, Outdoor Spectator Sports	-	50-70	-	70-85
Playgrounds, Neighborhood Parks	50-70	-	70-75	75-85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-70	-	70-80	80-85
Office Building, Business and Professional, Commercial	50-65	65-75	75-85	-
Industrial, Manufacturing, Utilities, Agriculture	50-70	70-80	80-85	-

[a] Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
[b] 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 would normally suffice.
[c] 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.
[d] Clearly Unacceptable: New construction or development should generally not be undertaken.

Note: Noise levels are provided in A-weighted decibels, CNEL.
Source: Office of Noise Control, California Department of Health

City of Perris Municipal Code

Section 7.34.040 of the Perris Municipal Code limits exterior noise levels at nearby properties to a maximum noise level (Lmax) of 80 dBA Lmax from 7:01 a.m. to 10:00 p.m. and 60 dBA Lmax from 10:01 p.m. to 7:00 a.m. Section 7.34.060 of the City's Municipal Code Chapter states that is unlawful for any person between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. Construction activity shall not exceed 80 dBA Lmax in residential zones.

In addition, the Noise Element addresses nuisance noise and states that it should be unlawful for any person to make or continue any loud, unnecessary noise that causes annoyance to any reasonable person of normal sensitivity.

Vibration Standards and Guidelines

Vibration is a unique form of noise as the energy is transmitted through buildings, structures and the ground whereas audible noise energy is transmitted through the air. Thus, vibration is generally felt rather than heard. The ground motion caused by vibration is measured as peak particle velocity (PPV) in inches per second. Vibration impacts to buildings are generally discussed in terms of PPV which describes particle movement over time (in terms of physical displacement of mass). Vibration can impact people, structures, and sensitive equipment Groundborne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and other high impact demolition and excavation-related activities. Grading also has the potential to cause short-term vibration impacts if large bulldozers, loaded trucks, or other heavy equipment operate within proximity to sensitive land uses. Use of the PPV descriptor is common when addressing potential impacts to structures. The maximum vibration level standard used by the California Department of Transportation (Caltrans) for the prevention of structural damage to typical residential buildings is 0.2 ips PPV (Caltrans 2020).

The vibration velocity level (VdB) is used to describe potential impacts to people. The threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (Federal Transit Administration, 2018).

Construction activities referenced above that would generate significant vibration levels are not proposed (i.e., blasting, pile driving, jackhammering). However, to provide information for use in completing the CEQA evaluation, construction-related vibration impacts are evaluated using both PPV and associated VdB criteria. Table 4 shows PPV, approximate VdB and related human reaction and effects on buildings.

Table 4
Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Traffic Vibration Levels

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effects on Buildings
0.006–0.019	64–74	Range of threshold of perception.	Vibrations unlikely to cause damage of any type.
0.08	87	Vibrations readily perceptible.	Recommended upper level to which ruins and ancient monuments should be subjected.
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities.	Virtually no risk of architectural damage to normal buildings.
0.2	94	Vibrations may begin to annoy people in buildings.	Threshold at which there is a risk of architectural

			damage to normal dwellings.
0.4–0.6	98-104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.	Architectural damage and possibly minor structural damage.

Source: Caltrans, April 2020

IMPACT ANALYSIS

Significance Thresholds and Methodology

The following significance criteria are based on Appendix G of the Guidelines for Implementation of the California Environmental Quality Act (14 CCR 15000 et seq.) and will be used to determine the significance of potential noise impacts. Impacts to noise would be significant if the proposed project would result in:

(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 groundborne vibration or groundborne 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, would the project expose people residing or working in the project area to excessive noise levels.

Construction noise estimates are based upon noise levels reported by the Federal Transit Administration, Office of Planning and Environment, and the distance to nearby sensitive receptors. Reference noise levels from that document were used to estimate noise levels at nearby sensitive receptors based on the applicable noise attenuation rate of 6 dB per doubling of distance (free field propagation of sound attenuation).

The proposed project would be a new use; thus, noise levels associated with existing and future traffic were based on the difference in trip volumes between existing conditions and the proposed use. A doubling of traffic volumes would be required to cause a noticeable increase (3 dBA) in traffic noise. Measured baseline conditions do not exceed 65 dBA CNEL, the normally acceptable exterior sound level for residential properties referenced in the General Plan Noise Element. Thus, with project sound levels were calculated to determine whether project traffic,

when added to baseline traffic, would exceed 65 dBA or increase (+3 dBA or greater) the Leq over baseline conditions for receivers adjacent to the project site.

As noted, a noise increase greater than 3 dBA is readily perceptible to the average human ear; and thus, is the level considered a substantial noise increase related to traffic operations. For the purpose of this evaluation, the CNEL is used for traffic noise as it provides a conservative estimate of potential noise levels.

a. ***Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

Temporary Construction Noise

The primary source of noise during construction activities would be comprised of heavy machinery used during site preparation (i.e., clearing/grubbing), grading and clearing the site, as well as equipment used during building construction and paving. Table 5 shows the typical noise levels associated with heavy construction equipment. As shown in Table 5, average noise levels associated with the use of heavy equipment at construction sites can range from 80 to 85 dBA at 50 feet from the source, depending upon the types of equipment in operation at any given time and phase of construction (FTA 2018). Project construction would occur over the entire project site. Construction activities will vary in distance from the nearest sensitive properties which are the single-family residences along Genuine Risk Street that back up to the eastern property line and along Chant Street that back up to the southern property line. While the distance between the property line and closest residences vary, the distance is approximatety 25 feet from the eastern and southern property lines.

Table 5
Typical Maximum (Lmax) Construction Equipment Noise Levels

Equipment Onsite	Typical Maximum Level (dBA) 25 Feet from the Source	Typical Maximum Level (dBA) 50 Feet from the Source	Typical Maximum Level (dBA) 100 Feet from the Source
Air Compressor	86	80	74
Backhoe	86	80	74
Bobcat Tractor	86	80	74
Concrete Mixer	91	85	79
Loader	86	80	74
Bulldozer	91	85	79
Jack Hammer	94	88	82
Pavement Roller	91	85	79
Street Sweeper	88	82	76

Table 5
Typical Maximum (Lmax) Construction Equipment Noise Levels

Equipment Onsite	Typical Maximum Level (dBA) 25 Feet from the Source	Typical Maximum Level (dBA) 50 Feet from the Source	Typical Maximum Level (dBA) 100 Feet from the Source
Man Lift	81	75	69
Dump Truck	90	84	78
Mobile Crane	89	83	77
Excavator/Scraper	91	85	79

Source: FTA Noise and Vibration Impact Assessment Manual (September 2018), Table 7-1.
Noise levels are based on actual maximum measured noise levels at 50 feet (Lmax).
Noise levels are based on a noise attenuation rate of 6 dBA per doubling of distance.

Construction noise across the entire site would vary throughout the workday and by phase (i.e., site preparation, grading, building construction, paving and architectural coating). As stated, the highest sustained noise levels would be associated with site preparation and grading because ongoing use of large earth moving and paving equipment would occur during these phases. Because of the site size, heavy equipment operation throughout the property can be accommodated simultaneously.

For the purpose of this evaluation, maximum construction noise was estimated with equipment operating at 25 feet from the nearest receiver west of the property line. for the site preparation and grading phase. This is conservative as equipment can operate simulateneously throughout the site; however, equipment cannot operate at the same location at the same time. Typically, equipment is staggered across the site. Site preparation and grading/excavation would utilize a bulldozer, backhoe and loader. For building construction, noise from operation of a crane, manlift, backhoe and tractor/loader were used. Paving equipment noise was calculated based on noise levels from operation of a roller and paver at 25 and 50 feet from any specific receiver. Use of an air compressor for application of architectural coating phases was modeled at 50 feet, the approximate distance between the closest building and the southern property line. Equipment and materials would be staged proximal to the buildings to use the structures as a noise barrier to the extent feasible. However, to present a more conservative analysis, the noise levels identified in this report do not include any of the noise reductions associated with the features discussed in this paragraph.

The Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) data were used to estimate construction noise levels at the nearest occupied noise-sensitive land use referenced above. Although the model was funded by the Federal Highway Administration, the RCNM data is used for non-roadway projects because the same types of construction equipment used for roadway projects are used for other types of construction. Input variables for the RCNM consist of the receiver/land use types, the equipment type and number of each, the duty cycle for each piece of equipment (e.g., percentage of hours the

equipment typically works per day), and the distance from the noise-sensitive receiver. As noted, the distances were varied across the site as equipment cannot work simultaneously in the same location from a given point. No topographical or structural shielding was assumed nor did the calculations account for the fact that not all equipment would operate at the same time. The estimated hourly Leq by phase are shown below in Table 6. These are the most conservative noise levels that could occur proximal to the neighboring properties.

As shown in Table 6, the highest hourly noise levels are projected to be 87.7 dBA Lmax at 25 feet during site preparation and grading and 88.0 dBA 20 feet during paving. Maximum building construction noise levels are conservatively estimated to be 79.0 dBA Lmax at 50 feet from the property line. As stated, this does not consider screening by the buildings as they are constructed. The Lmax associated with the application of architectural coating would be approximately and 77.7 dBA Lmax (at 50 feet), respectively.

Table 6
Estimated Maximum Construction Noise Levels

Phase	Lmax Noise Levels
Site Preparation (dozer, back-hoe, front-end loader)	87.7
Grading (dozer, backhoe and front-loader)	87.7
Building Construction (crane, manlift, backhoe and front-end loader)	79.0
Paving (paver and roller)	88.0
Architectural Coating (air compressor)	77.7

Note: Site Prearation,Grading and Paving assumes equipment would operate at 25 feet from the nearest receiver to approximate worst case conditions.

On a typical workday, heavy equipment will be operating sporadically throughout the project site and more frequently away from the edges of the site as the site preparation and grading phases are completed. However, nearby off-site residences would be exposed to elevated noise levels associated with construction. As stated, the City of Perris Municipal Code restricts construction to the weekday hours between 7:00 am and 7:00 pm , with the exception of some holidays. Construction is not allowed on Sundays or applicable holidays. The Project would comply with the Municipal Code restrictions on construction hours. Further, construction noise levels would be relatively short term and terminate as each construction phase is completed. However, as stated, noise levels could exceed the 80 dBA Lmax standard at the closest sensitive properties. Implementation of project specific Mitigation Measures N-1, N-2 and N-3 would reduce potential impacts to less than **less than significant**.

N-1: **Install Temporary Noise Barrier.** A noise barrier shall be erected along the southern and eastern site boundary during construction. A minimum 8-foot-high barrier shall be maintained throughout site preparation and grading activities to reduce noise at adjacent

receivers to the south and east. The noise barrier should be constructed of material with a minimum weight of 4 pounds per square foot with no gaps or perforations. Noise barriers may be constructed of 5/8-inch plywood and/or 5/8-inch oriented strand board. Other temporary construction noise barrier systems may be used at the contractors discretion with City of Perris approval.

N-2: Neighbor Notification. Notification shall be provided to residential occupants adjacent to the project site at least 48 hours prior to initiation of construction activities that could result in substantial noise levels at outdoor or indoor living areas. This notification shall include the anticipated hours and duration of construction and a description of noise reduction measures being implemented at the project site. The notification shall include a telephone number for local residents to call and submit complaints associated with construction noise.

N-3: Noise Control Plan. Construction contractors shall develop and implement a noise control plan that includes a noise control monitoring program to avoid construction noise levels exceeding 80 dBA Lmax at the nearest sensitive receivers. The plan may include the following requirements:

- Contractor shall turn off idling equipment.
- Contractor shall perform noisier operation during the times least sensitive to receptors.
- All diesel equipment shall be operated with closed engine doors and shall be equipped with factory- recommended mufflers.
- Electrical power shall be used to run air compressors and similar power tools and to power any temporary structures, such as construction trailers or security staff facilities.

Operational Noise Exposure

Operation of the proposed project was evaluated for potential exterior traffic related impacts caused by increased traffic volumes associated with the project caused by traffic. As documented in the project's Trip Generation/VMT Screening Memorandum (August 2023), the proposed project is considered a typical development that would not cause traffic on the existing road network to exceed City established thresholds or affect the distribution of nighttime traffic. All project traffic accessing the site would be concentrated on North Perris Boulevard and Placentia Avenue.

Exterior Traffic Noise. Traffic is the primary noise source that would be generated by operation of the proposed project. As stated, existing noise levels were measured at the project site on August 22, 2023. The highest Leq during the 15-minute monitoring period was 63.4 dBA at the southwest corner of the site along North Perris Boulevard. The existing measured Leq at the

northeast corner of the project site was 61.3 dBA. Noise levels at receiving properties proximal to the site are below 65 dBA, the normally compatible noise level for residences referenced in the General Plan Noise Element policy for exterior noise exposure to transportation related noise at residences and other sensitive properties. As stated, the Noise Element sets 60 dBA CNEL for the outdoor areas and interior noise levels of less than 45 dBA CNEL as the "normally acceptable" level. Noise levels up to 65 dBA CNEL are "conditionally acceptable" when interior noise standards can be met and noise levels are dominated by traffic.

The roadway network adjacent to the project site was modeled using the Federal Highway Administration Traffic Noise Model (TNM) version 2.5 software. The model calculates traffic noise at receiver locations based on traffic volumes, travel speed, mix of vehicle types operating on the roadways (i.e., cars/trucks, medium trucks and heavy trucks) and related factors. The 6-foot high concrete masonry unit (CMU) walls along the eastern and southern property boundaries, along the east side of North Perris Boulevard south and north of the site and along the north side of Placentia Boulevard were included in the calculations. The vehicle mix on North Perris Boulevard and Placentia Avenue is based on vehicle counts during noise monitoring. Hourly average baseline noise levels (Leq) were calculated at representative single-family residences located at the southwest corner of the site along North Perris Boulevard and along Placentia Avenue north of the site to calibrate the noise model without the existing CMU walls. The CMU walls were then added to the model to approximate actual baseline noise conditions at five sensitive properties adjacent to the site. These receivers represent the residences adjacent to the project. These receivers would experience the highest concentration of project-related traffic. The receiver locations are defined as follows and shown in Figure 4.

1. Single-family residence at 2672 20 Grand Street southwest of the site;
2. Single-family residence at 34 Chant Street southwest of the site;
3. Single-family residence at 113 Galileo Lane north of Placentia Avenue;
4. Single-family residence at 145 Galileo Lane north of Placentia Avenue; and
5. Single-family residence at 100 Spectacular Bid Street northeast of the site.

Receivers 1 and 2 represent residences along North Perris Boulevard south of the site. Receivers 3, 4 and 5 represent residences along Placentia Avenue north and east of the site. Noise levels associated with the project were calculated by distributing 1,205 P.M. peak hour project trips generated by the Project into the baseline traffic volumes along North Perris Boulevard and Placentia Avenue. Volumes were concentrated in these areas for the purpose of evaluating worst case noise conditions. The modeling results are shown in Table 7. As shown, the highest modeled increase would occur at Receivers 4 and 5. Project P.M. peak hour volumes would not be high enough to cause a noticeable effect (i.e., +/- 3 dBA) on baseline conditions at any of the receivers modeled. Impacts related to exterior traffic-related noise would be less than significant.

Figure 4

Table 7
Modeled Noise Levels

Receptor	Existing Ldn/CNEL	Cumulative With Project Ldn/CNEL	Decibel Change –	Significant Impact
Receiver 1	57.0	57.8	+0.8	No
Receiver 2	58.2	59.0	+0.8	No
Receiver 3	60.2	61.1	+0.9	No
Receiver 4	58.2	59.4	+1.2	No
Receiver 5	55.8	57.1	+1.3	No

On-Site Truck Movement. Mid-size delivery trucks (i.e., two-axle, six wheel) would move throughout the site servicing the commercial tenants. It is assumed that some heavy trucks (i.e., semi-trucks) would deliver to the supermarket regularly. The heavy trucks would enter the site from the north and travel around to the back of the grocery store and retail buildings to unload. Placentia Avenue is a designated truck route within the City of Perris and Interstate 215 is located approximately one mile to the west. To quantify on-site truck movement noise exposure in terms of the CNEL/Ldn (24-hour average), individual truck movement sound exposure level (SEL) is used. The SEL is a measure of the total energy of a noise event, including consideration of event duration. The SEL is not actually heard, but is a derived value used for the calculation of energy-based noise exposure metrics such as the CNEL/Ldn. The average measured truck event movement SEL is 78.1 decibels (Birdseye Planning Group, 2024/WJVA Acoustics, 2017) which includes noise generated by diesel engines, air brakes and backup warning devices. The number of daily truck trips accessing the loading dock(s) at the rear of the store is assumed to be 18 (Transportation Northwest, August 2010) and that the trips would be evenly distributed over a 24-hour day. The L_{dn} associated with truck movement is quantified using the following equation:

Ldn = *SEL + 10 log Neq – 49.4*

SEL is the average SEL for a heavy truck movement, Neq is the equivalent number of truck movements in a typical 24-hour period determined by adding 10 times the number of nighttime events (10 p.m. - 7 a.m.) to the actual number of daytime events (7 a.m. – 7 p.m.), and 49.4 is a time constant equal to 10 log the number of seconds in the day. Assuming 18 truck events per day, the resulting noise exposure on-site would be approximately 41.2 dBA Ldn (i.e., 24-hour average). The Lmax (78.1 dBA) associated with heavy truck movement would be less than the 80 dBA Lmax daytime standard; however, it would exceed the 60 dBA Lmax nighttime standard.

Drive-Thru Menu Board Speakers. Speaker noise is an intermittent, variable noise source and subject to change with volume settings. Based on field observations, speaker noise is typically screened by the vehicle at the menu board and is audible as a conversational source. Measured sound levels from drive-thru menu boards approximate 53 dBA at approximately 32 feet. As stated, ambient noise levels at the southwest corner of the site is approximately 63.5 dBA and

61.3 dBA at northeast corner. As stated in the Project Description, a total of three quick serve restaurants with drive thru windows are proposed along the western side of the site adjacent to North Perris Boulevard. One would be located near the southwest corner of the site north of the 26-foot wide driveway and adjacent 12-foot wide drive thru lane.

Speakers may be mounted in a variety of different enclosures. Further, buildings, adjacent cars and other cars in proximity all effect the direction and attenuation rate of speaker noise. Speaker noise is also intermittent rather than a constant source. These factors all make the sound more directional and the decay rate less predictable. Based on the planned orientation of the speaker boards, the speaker noise associated with the northerly two quick serve restaurants would project west towards North Perris Boulevard. However, the quick serve restaurant at the southwest corner of the site would project south towards the receivers located adjacent to the southwest corner of the site. The menu board speaker would be approximately 40 feet north of the southern property line. A sound level of 53 dBA at 32 feet would be less than the 80 dBA daytime Lmax standard and 60 dBA nighttime Lmax standard at the southern property line. The existing perimeter wall would provide approximately 5 dBA of additional attenuation. Speaker noise at the residences located south of the site would be 48 dBA Lmax which is less than baseline levels and both the daytime and nighttime standard.

Loading Dock Operation. The reference loading dock activities are intended to describe the typical operational noise activities associated with primarily the supermarket; however, deliveries would occur at all the buildings located on-site. The supermarket loading dock is located on the east side of the building approximately 43 feet west of the property line, proximal to single-family residences located adjacent to and east of the site. Loading docks noise includes trucks maneuvering, air brakes, truck unloading, backup alarms or beepers and truck docking. Truck operation would be comprised of a combination of tractor trailer semi-trucks and two-axle delivery trucks. To describe the supermarket loading dock activities, short-term reference noise level measurements were collected. The reference loading dock activity noise level measurement was taken over a fourteen-minute period and represents multiple noise sources taken from the center of activity generating a reference noise level of 71.2 dBA Lmax at a uniform reference distance of 50 feet.

Typical backup alarms generate a noise level of 109.7 dBA at four feet at a single frequency of one KHz. Backup alarms on trucks are commonly mounted on the back of the truck at a height of 3 feet above the ground. Assuming 18 truck operations daily, using the equation above and an SEL/Lmax of 71.2 dBA,the CNEL/Ldn for general activity within the loading area would be 39.8 dBA CNEL. A Lmax of 71.2 dBA would not noticeably attenuate over the distance between the supermarket building and closest residences to the east; however, the existing 6-foot high CMU wall would provide approximately 5 dBA of attenuation. The loading dock activity would would not exceed the 80 dBA daytime Lmax standard; however, it would exceed the 60 dBA Lmax nighttime standard. Without mitigation, the impact would be considered significant.

Roof-Top Air Conditioning Units. The Project would use commercial-sized HVAC units located on the rooftop of the buildings behind shrouds and/or parapets. Specific planning data for the future HVAC systems is not available at this stage of project design. To assess the noise levels created by the roof-top air conditioning units, reference noise level measurements from Lennox SCA120 series 10-ton model packaged air conditioning unit were used. At a uniform reference distance of 50 feet, the roof-top air conditioning units generate a reference noise level of 57.7 dBA Lmax. The parapets would provide 5-10 dBA of attenuation which would reduce HVAC noise to approximately 52.7 dBA. If located proximal to the center of the buildings, noise levels from each unit would attenuate to below existing background noise levels approximately 50 feet from the source. HVAC systems are not anticipated to be audible at off-site receivers.

Combined Sources. The combined noise from operation of the HVAC units would attenuate to approximately 52.7 dBA Lmax at 50 feet, the approximate distance between the source and closest residential receivers to the south. This would meet both the 80 dBA Lmax daytime and 60 dBA Lmax nighttime standard along the eastern and southern property lines where residences are located adjacent to the site. The closest menu board speaker would be approximately 40 feet north of the southern property line. A sound level of 53 dBA at 32 feet would be less than the 80 dBA daytime Lmax standard and 60 dBA nighttime Lmax standard at the southern property line. Truck movement would generate an Lmax of approximately 78.1 dBA Lmax and a 24-hour average of 41.2 dBA. The 24-hour average is below the residential compatibility standard identified in the General Plan Noise Element as referenced above. While truck movement activities would be below the 80 dBA Lmax daytime standard, truck movement could exceed the 60 dBA Lmax nighttime standard during individual events. Similarly, operation of the loading dock behind the supermarket would exceed the 60 dBA nighttime standard. To avoid exceeding the nighttime standard, it is recommended that mitigation measure N-4 be implemented.

> **N-4: Truck Deliveries.** All truck deliveries requiring use of the loading dock at the rear of the supermarket building shall be conditioned to occur between 7:00 a.m. and 10:00 p.m.

With implementation of project-specific Mitigation Measure N-4, nighttime noise levels at neighboring receivers would be less than significant.

b. Generation of excessive groundborne vibration or groundborne noise levels?

Temporary Construction-Related Vibration

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. As stated, 0.2 PPV (94 VdB) is the vibration level

at which damage to residential structures can occur and is considered annoying to most people exposed to the vibration energy (FTA 2018).

Heavy impact construction methods that could generate enough vibration to damage buildings proximal to the project site (i.e., pile driving, rock breaking, drilling, blasting) would not be required for the project. However, both PPV and the related VdB are used to address construction vibration and related effects to structurees and people residing in adjacent residences. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible. The PPV and accompanying VdB level associated with common construction equipment is shown in Table 8.

Construction activity on the project site would be temporary and vibration events would be transitory occuring only during equipment pass bys. Using vibration levels associated with a large bulldozer the piece of equipment with the highest vibration level, as a worst case scenario, typical groundborne vibration could reach 87 VdB at 25 feet, the distance between the eastern and southern property boundary and nearest receivers. Vibration at this level can cause annoyance for brief periods of time during pass by events. Sustained equipment operation is not expected to occur proximal to this location nor would the PPV reach levels that may cause structural damage to the residential building.

As stated, vibration levels in excess of 75 VdB may be perceptible; thus, vibration may be perceptible at the nearest residences periodically during equipment pass by events. While there are no specific standards for use in quantifying excessive vibration levels, the PPV would not be high enough to damage buildings (i.e., 0.2 PPV) nor would construction activities generate vibration levels high enough to annoy people (i.e., 94 dBA). Thus, temporary vibration impacts would be **less than significant**.

Operation-Related Vibration

The proposed project would provide eight new commercial buildings. These uses do not generate vibration; thus, no vibration impacts are anticipated to occur with operation of the project.

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, would the project expose people residing or working in the project area to excessive noise levels?

The Project site is located approximately 3.0 miles south of MARB/IPA and is located within the MARB/IPA Airport Influence Area Boundary, and the 2018 U.S. Air Force Final Air Installations Compatible Use Zone (AICUZ) Study. The project site is located within the 65 dBA CNEL noise contours shown in Exhibit MA-4 of the March Air Reserve Base/Inland Port Airport Land Use

Compatibility Plan (November 2014). A CNEL of up to 65 dBA is normally compatible for commercial uses as shown in Table 3. Noise impacts associated with aircraft operations at the March ARB/IPA would be less than significant.

Table 8
Vibration Source Levels for Construction Equipment

	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58
Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, September 2018.		

The Perris Valley Airport-L65 is located approximately 3.4 miles south of the Project site. According to the Airport Land Use Compatibility Plan (ALUCP) for the Perris Valley Airport, the Project site is not located within the Airport Influence Area Boundary or area affected by aircraft noise as per Exhibit PV-3 (Riverside County Airport Land Use Commission 2011). The proposed commercial uses do not include any uses that would be hazards to flight and would not be affected by aircraft noise. Therefore, hazards associated with aircraft operations would be less than significant and no Project-specific mitigation would be required.

CONCLUSION

The proposed project was evaluated for potential construction and operational noise impacts. As discussed herein, potential temporary construction noise impacts would be reduced to less than significant with implementation of Mitigation Measure N-1 N-2 and N-3. Operational impacts related to nighttime on-site truck movement would be reduced to less than significant with implementation of project-specific Mitigation Measure N-4. No impact would occur with operation of the HVAC systems.

Temporary impacts associated with construction vibration would be less than significant. The proposed commercial uses do not generate vibration; thus, no vibration impacts are anticipated to occur with operation of the project.

With respect to airport operations, the Project site is located within the 65 dBA noise contour for March ARB/IPA ALUP; however, commercial uses are normally compatible with this noise level. Thus, the project employees would not be exposed to excessive noise levels. Impacts would be less than significant.

REFERENCES

Birdseye Planning Group, LLC, Distribution Park Commercial and Industrial Project Noise Study, Perris, CA. April 2024.

California State Office of Planning and Research, Updates to the General Plan Guidelines, Appendix D Noise Element Guidelines, 2017

California Department of Transportation, Noise and Vibration Guidance Manual, April 2020

City of Perris General Plan Noise Element, 2016

City of Perris Municipal Code Section 7.34.040 – General Sound Level Limits

City of Perris Municipal Code Section 7.34.060 – Construction Noise

dBF & Associates, Inc., Reference Noise Level Compilation Table, 2016.

Federal Highway Administration, Traffic Noise Model Version 2.5, 2004.

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

Mizuta Traffic Consulting, Inc., *Trip Generation and Vehicle Miles Traveled (VMT) Screening Analysis*, October 2024.

Appendix A

Monitoring Data Sheet and Modeling Results