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MAVERIK FUELING STATION AND CONVENIENCE STORE PROJECT

NOISE STUDY

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MAVERIK FUELING STATION AND CONVENIENCE STORE PROJECT
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NOISE STUDY

This report is an analysis of the potential noise impacts associated with the proposed Maverik Fueling and Convenience Store Project in the City of Indio, 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

Maverik ™ (Applicant) is proposing to develop a fueling station and convenience store on a portion of an 8.62-acre parcel in the City of Indio California. Specifically, the Project site is vacant and undeveloped and is located on the northeast corner of Avenue 45 and Golf Center Parkway, south and west of the Whitewater River, which is the primary stormwater conveyance channel. The Maverik Fueling Station and Convenience Store Project (proposed Project or Project) would be developed on 3.37-acre portion of the parcel, with the remainder of the parcel (5.26 acres) remaining undeveloped.

The Project includes 10 fuel pumps (20 fueling positions) under a single canopy (totaling 7,214 square feet [SF]), a diesel fueling area with four (4) fueling stations, and a 5,951 SF convenience store building. Additional improvements include three (3) underground storage tanks (USTs) for fuel storage; a Certified Automated Truck Scale (CAT) truck scale, trash enclosure, generator, a tire pressure air station, parking, landscaping, drainage, utility connections, and access improvements. The fueling station would provide a combined maximum throughput of 8.5 million gallons of gasoline, diesel and biofuel annually.

Vehicular access would be provided via two (2) ingress/egress drives; one along the north side of Avenue 45 aligned with Commerce Street, and one along the east side of Golf Center Parkway. The proposed access on Avenue 45 would be a 50-foot driveway that would allow for a right-turn movement by vehicles access the accessing the site and a right- and left-turn movement by vehicles existing the site. Proposed access on Golf Center Parkway would be a 40-foot driveway, aligned with the driveway on the north side of Golf Center Parkway. This driveway would provide for a right-turn movement by vehicles access the site and a right- and left-turn movement for exiting vehicles. Parking would be provided in four (4) parking areas for a total of 38-parking spaces, including two (2) accessible spaces. No overnight parking would be

allowed and parking within the fueling area would be limited to 30 minutes. Construction for the Project is anticipated to begin in 2025 and take approximately six (6) to eight (8) months. All construction staging would occur within the bounds of the Project site. The project vicinity map is shown in Figure 1. The proposed site plan is shown in Figure 2.

Construction Characteristics

Construction is expected to begin in 2025 and be completed by late 2025 (approximately 18 months). 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 Indio. 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

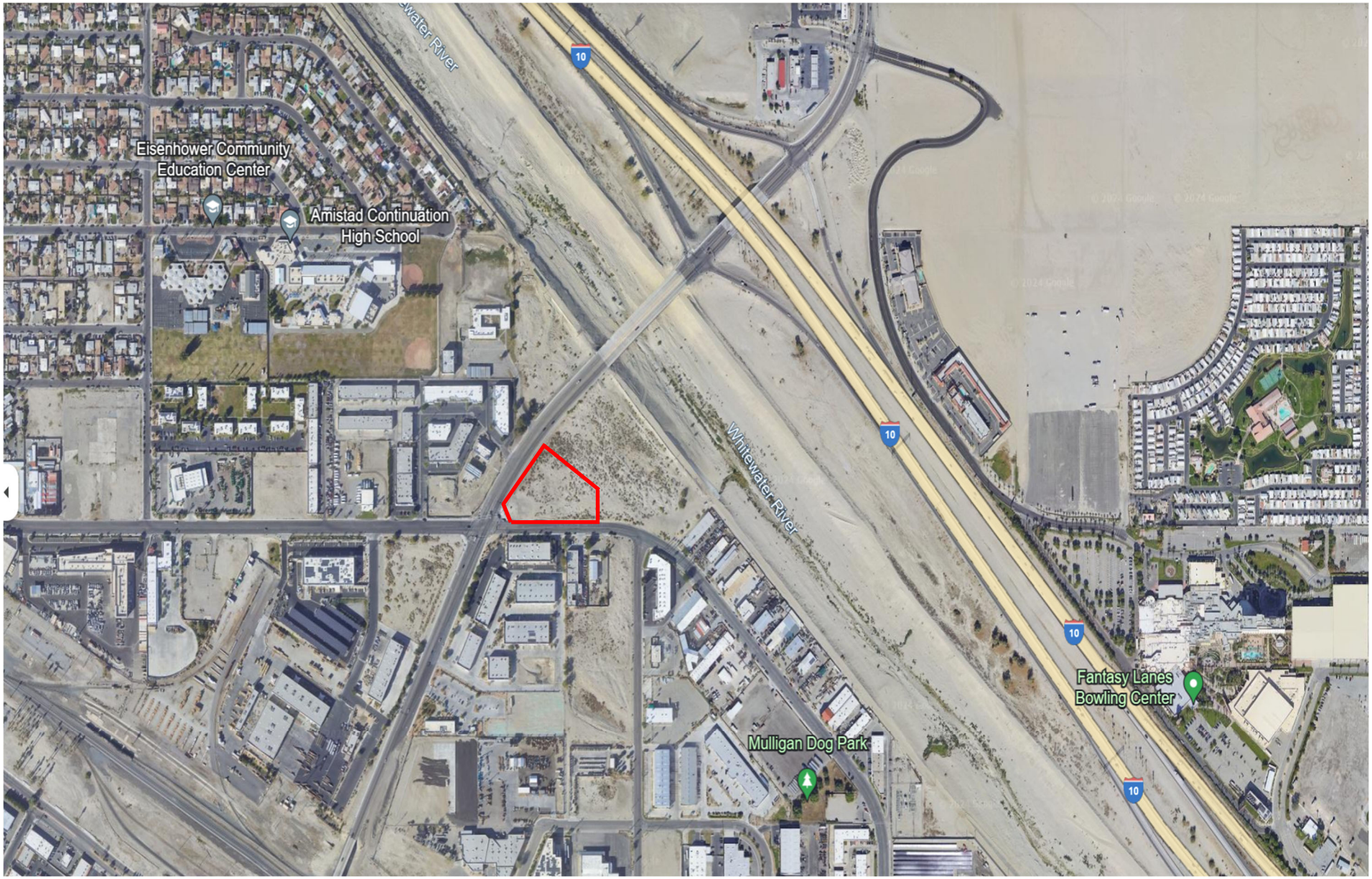

Figure 1 - Vicinity Map

- Project Site

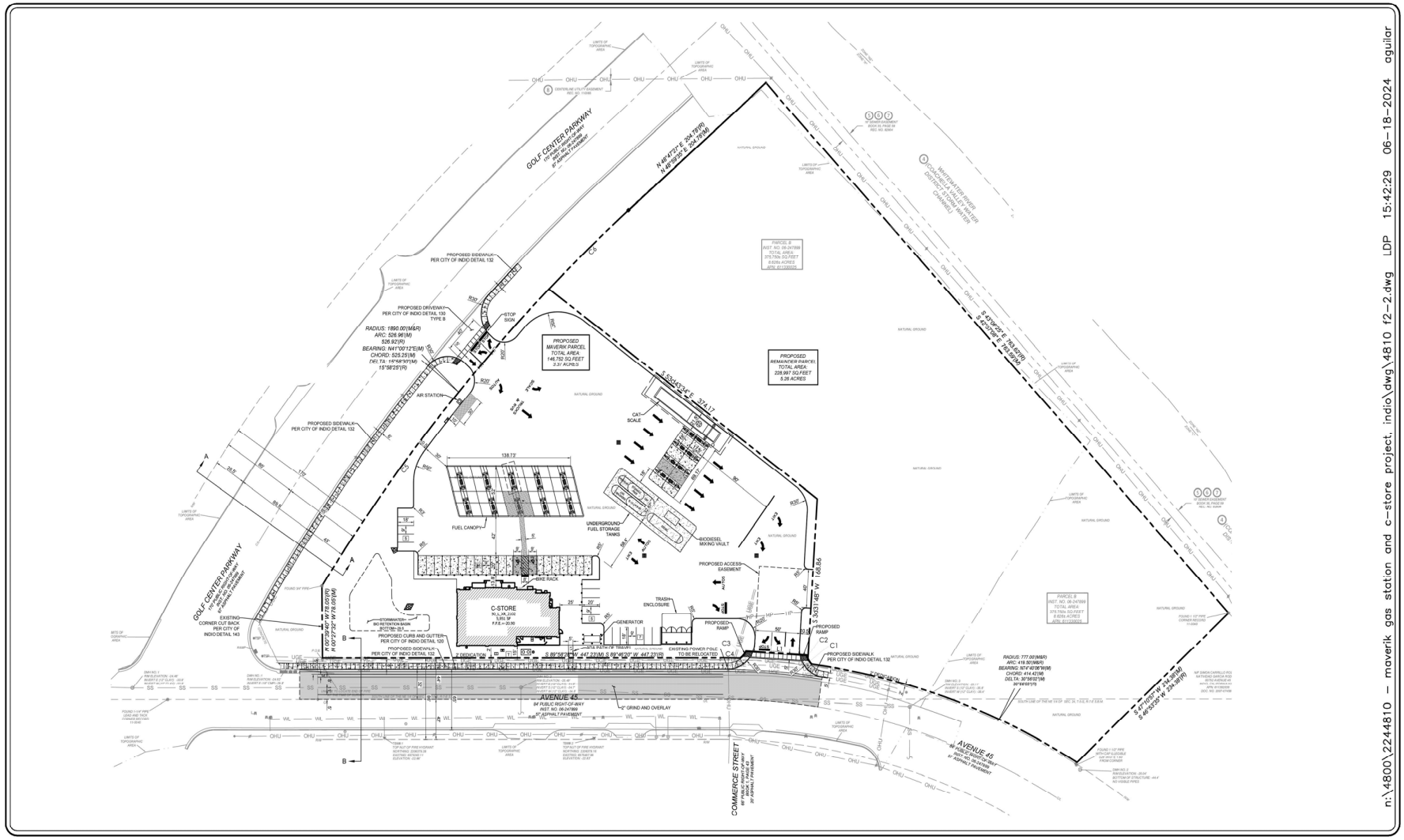

Figure 2— Site Plan

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. The closest sensitive receptors are the Palo Verde Apartments located approximately 1,100 feet northwest of the site at 44720 Palo Verde Street. All other existing land uses adjacent to the Project site are commercial/light industrial.

Project Site Setting

The Project site is generally bordered by urban development. The Whitewater River/Coachella Valley Stormwater Chanel is located east of the site and is zoned OS (Parks & Open Space). To the southeast is an existing multi-tenant building housing Best Auto Body, Juan's Complete

Auto & Smog, and Alba's Auto Garage. This area is zoned IH (Heavy Industrial). To the south across Avenue 45, are a series of businesses in multiple buildings including Stotz Equipment, Yuma Auto Services, McIntyre Pools & Spas, and Zamora's Smog Center; all of which are zoned IH (Heavy Industrial). To the west across Golf Center Parkway, is a 7-Eleven store, and a series of businesses in multiple buildings, all of which are zoned IL (Light Industrial).

The most common and primary sources of noise in the project site vicinity are motor vehicles (e.g., automobiles and trucks) operating on Interstate 10, Golf Center Parkway and Avenue 45. 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 May 20, 2024 using an ANSI Type II integrating sound level meter. The predominant noise source was traffic. The temperature during the monitoring episode was approximately 73 degrees Fahrenheit with wind at approximately 10 mph from the north/northwest.

Site 1 is located at the southwest corner of the Project site proximal to Avenue 45 and Golf Center Parkway. During monitoring, approximately 236 cars/light trucks, 18 medium trucks (six tires/two axles) and nine heavy trucks (all vehicles with three or more axles) passed the site on Golf Center Parkway. A total of 74 cars/light trucks, nine medium trucks and 23 heavy trucks passed the site on Avenue 45. The monitoring location is shown in Figure 3. As shown in Table 2, the measured Leq was 65.7 dBA at Site 1. The monitoring data sheet is provided in Appendix A.

Table 2
Noise Monitoring Results

Measurement Location	Primary Noise Source	Sample Time	Leq (dBA)
Site 1. Southwest corner of site proximal to Golf Center Parkway and Avenue 45.	Traffic	May 20, 2024 8:06 -8:21.	65.7

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

Noise Standards and Policies

Federal Noise Policies. There are no federal noise requirements or regulations that apply directly to the City of Indio. However, there are federal regulations that influence the audible landscape, especially for projects where federal funding is involved. For example, the FHWA requires abatement of highway traffic noise for highway projects through rules in the Code of Federal Regulations (23 CFR Part 772), the Federal Transit Administration (FTA), and Federal Railroad Administration (FRA). Each agency recommends thorough noise and vibration assessments through comprehensive guidelines for any highway, mass transit, or high-speed railroad projects that would pass by residential areas.

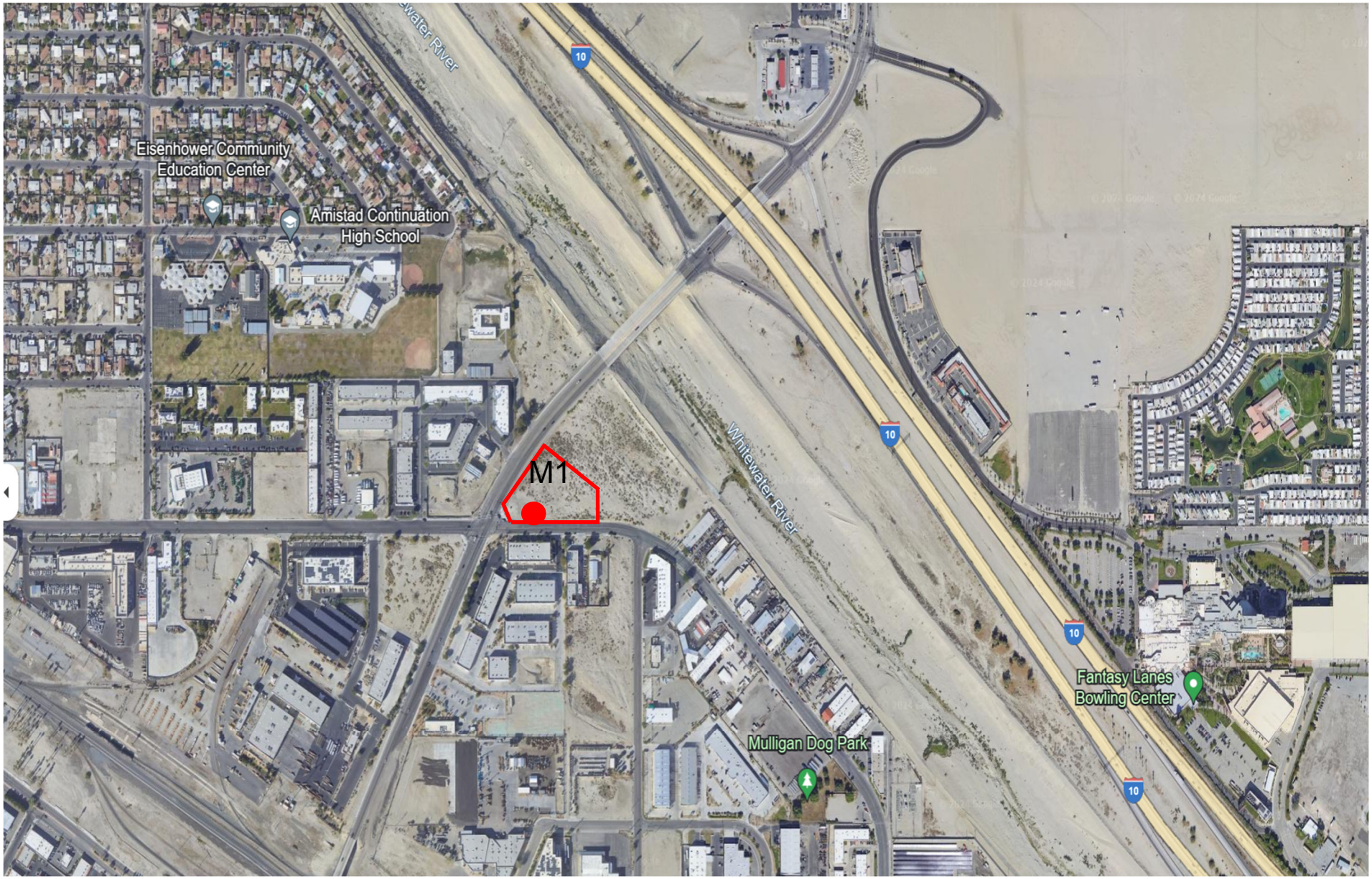

Figure 3 - Monitoring Location

- Project Site

Federal Vibration Policies. The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of groundborne vibration associated with construction activities, which have been applied by other jurisdictions to other types of projects. The FTA measure of the threshold of architectural damage for non-engineered timber and mason buildings (e.g., residential units) is 0.2 in/sec PPV. The threshold of perception of vibration is 0.01 in/sec PPV (Federal Transit Administration, 2018).

State Noise Policies. Title 24, Section 3501 et. seq. of the California Code of Regulations codifies California Noise Insulation Standards. This code section uses the Community Noise Equivalency Level (CNEL) as its primary noise evaluation measurement. The CNEL measurement assesses noise variation during different times of the day for the purposes of averaging noise over a 24-hour period. Essentially, CNEL takes average sound levels at an observation point and adds a weighted penalty to those sounds that occur during the evening (+5 dBA) and nighttime hours (+10 dBA). An interior noise level of 45 dBA CNEL is often considered the desirable noise exposure level for single-family residential units. An exterior noise level of 65 dBA is generally considered an acceptable level for residential and other noise-sensitive land uses.

State Vibration Policies. There are no state standards for traffic-related vibrations. California Department of Transportation's (Caltrans) position is that highway traffic and construction vibrations generally pose no threat to buildings and structures. For continuous (or steady-state) vibrations; however, Caltrans considers the architectural damage risk level to be somewhere between 0.2 and 2.0 inches/second (California Department of Transportation, 2002).

City of Indio Noise Ordinance. Section 95C.08 (B)(3) of the Indio Municipal Code exempts construction activities between the hours of:

(1) *Pacific Standard Time.*
   (a) Monday through Friday, 7:00 a.m. through 6:00 p.m.
   (b) Saturday, 8:00 a.m. through 6:00 p.m.
   (c) Sunday, 9:00 a.m. through 5:00 p.m.
   (d) Government Holidays, 9:00 a.m. through 5:00 p.m.

(2) *Pacific Daylight Time.*
   (a) Monday through Friday, 6:00 a.m. through 6:00 p.m.
   (b) Saturday, 7:00 a.m. through 6:00 p.m.
   (c) Sunday, 9:00 a.m. through 5:00 p.m.
   (d) Government Holidays, 9:00 a.m. through 5:00 p.m.

No specific exterior noise standards are associated with activities occurring in Heavy Industrial zones. Per the City of Indio Proposed General Plan Update Land Use Compatibility Matrix, 50 to 65 dBA CNEL is acceptable for single- and multifamily residential, senior housing and

convalescent homes, while CNEL values up to 75 dBA are conditionally acceptable. Within industrial zones, noise level up to 70 dBA CNEL are normally compatible. Noise levels above 70 dBA CNEL are conditionally compatible.

For the purpose of this discussion, because existing conditions currently exceed 65 dBA, a noticeable change in noise levels (+3 dBA or greater) caused by the project is used to determine impact significance at adjacent properties and the closest sensitive property, the Palo Verde Apartments, located approximately 1,100 feet northwest of the site.

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 3 shows PPV, approximate VdB and related human reaction and effects on buildings.

Table 3
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 at the site exceed 65 dBA CNEL, the normally acceptable exterior sound level for residential properties referenced in the General Plan Noise Element. However, it is within the compatible range for commercial/light industrial uses. Thus, with project sound levels were calculated to determine whether project traffic, when added to baseline traffic, would increase by 3 dBA or greater 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 4 shows the typical noise levels associated with heavy construction equipment. As shown in Table 4, 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. While the distance between the property line and closest properties vary, the distance is approximatety 25 feet from the eastern and southern property lines.

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.

Table 4
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
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.

For the purpose of this evaluation, maximum construction noise was estimated with equipment operating at 25 and 50 feet from the nearest receiver south 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 (or similar equipment to lift/lower the fueling tanks), 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 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 5. These are the most conservative noise levels that could occur proximal to the neighboring properties.

Table 5
Estimated Maximum Construction Noise Levels

Phase	Lmax Noise Levels 25 feet	Lmax Noise Levels 50 feet
Site Preparation (dozer, back- hoe, front-end loader)	87.7	81.7
Grading (dozer, backhoe and front-loader)	87.7	81.7
Building Construction (crane, manlift, backhoe and front-end loader)	79.0	73.0
Paving (paver and roller)	88.0	82.0
Architectural Coating (air compressor)	77.7	71.7

Note: Site Prearation,Grading and Paving assumes equipment would operate at 50 feet from the nearest receiver to approximate worst case conditions.

As shown in Table 5, the highest hourly noise levels are projected to be 81.7 dBA Lmax at 50 feet during site preparation and grading and 82.0 dBA 20 feet during paving. Maximum building construction noise levels are conservatively estimated to be 73.0 dBA Lmax at 50 feet from the property line. The Lmax associated with the application of architectural coating would be approximately 71.7 dBA Lmax at 50 feet, respectively. Noise levels trypically attenuate by 6 dBA per doubling of distance from the source. Thus, construction noise on the project site would be inaudible at the Palo Verde Apartments located approximately 1,100 feet northwest of the site.

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. 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. Potential impacts would be **less than significant**.

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 peak hour traffic volumes documented in the project's Trip Generation Memorandum (LLG, June 2024).

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 May 20, 2024. The Leq during the 15-minute monitoring period was 65.7 dBA near the southwest corner of the site proximal to the intersection of Avenue 45 and Golf Center Parkway. The closest sensitive property, Palo Verde Apartments, is approximately 1,100 feet northwest of the site, west of Golf Center Parkway. Based on ambient conditios at the site and the location of Golf Center Parkway, Project-related noise would be masked by existing noise and not audible at this location. Thus, for the purpose of this evaluation, noise levels at commercial properties proximal to the site were modeled to detrermine whether the Project would cause a noticeable change (+3 dBA or greater) in noise conditions or otherwise cause noise levels to exceed 70 dBA, the normally compatible maximum noise level for commercial/light industrial properties.

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 vehicle mix on Avenue 45 and Golf Center Parkway is based on vehicle counts during noise monitoring. Hourly average baseline noise levels (Leq) were calculated at the closest residential receiver (Palo Verde Apartments) and representative commercial properties south of Avenue 45 and west of Golf Center Parkway to calibrate the noise model. Receivers 2 and 3 would experience the highest concentration of project-related traffic. The receiver locations are defined as follows and shown in Figure 4.

1. Palo Verde Apartments 1,100 feet northwest of the site;
2. Commercial building at 45050 Avenue 45 south of the project site; and
3. Commercial building at 44911 Golf Center Parkway.

Noise levels associated with the project were calculated by distributing 182 A.M. peak hour project trips generated by the Project into the baseline traffic volumes along Golf Center Parkway northwest of the site and Avenue 45 south of the site. Volumes were concentrated in these areas for the purpose of evaluating worst case noise conditions. The modeling results are shown in Table 6. As shown, the highest modeled increase would occur at Receiver 3. Project A.M. peak hour volumes would increase by 3.1 dBA which may be perceptible at the building exterior. However, this is a commercial building and noise levels would remain within the normally compatible range. Baseline conditions at the nearest sensitive property (Receiver 1) would not noticeably change with the project. Impacts related to exterior traffic-related noise would be less than significant.

Figure 4 - Receiver Locations

- Project Site

Table 6
Modeled Noise Levels

Receptor	Existing Ldn/CNEL	Cumulative With Project Ldn/CNEL	Decibel Change –	Significant Impact
Receiver 1	57.0	57.5	+0.5	No
Receiver 2	67.2	69.0	+1.8	No
Receiver 3	65.4	67.5	+3.1	No

On-Site Truck Movement. Mid-size delivery trucks (i.e., two-axle, six wheel) would move throughout the site servicing the commercial tenents. Heavy trucks (i.e., semi-trucks) would deliver to the site as well as enter the site for fueling purposes. 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, 2022/WJVA Acoustics, 2017) which includes noise generated by diesel engines, air brakes and backup warning devices. The number of daily heavy trucks accessing the site for fueling or deliveries is estimated to be 1,026. It is assumed that truck 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 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 1,026 truck events per day, the resulting noise exposure on-site would be approximately 58.8 CNEL. Noise associated with on-site truck movement would be less than ambient noise levels and below both the residential and commercial compataibility standards.

Roof-Top Air Conditioning Units. The project would use commercial-sized HVAC units located on the rooftop of the building. 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. If located proximal to the center of the convenience store building, noise levels from each unit would attenuate to below existing background noise levels approximately 100 feet from the source. HVAC systems are not anticipated to be audible at off-site properties.

Combined Sources. The combined noise from operation of the HVAC units would attenuate to approximately 51.7 dBA Lmax at 100 feet, the approximate distance between the source and southern property line. As stated above, truck movement would generate an Lmax of approximately 78.1 dBA and a 24-hour CNEL of 58.8 dBA. The 24-hour average is below the residential and commercial compatibility standard discussed above and would be inaudible above the traffic noise generated by vehicles on Golf Center Parkway and Avenue 45. Noise levels at Receiver 1, the closest residential receiver, would not noticeably change with implementation of the project.

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 7.

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 receiving properties. 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 adjacent commercial buildings.

As stated, vibration levels in excess of 75 VdB may be perceptible; thus, vibration may be perceptible at the nearest commercial buildings 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**.

Table 7
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.		

Operation-Related Vibration

The proposed project would provide a new convenience store and fueling station. 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 6.3 miles northwest of Jacqueline Cochran (Thermal) Airport. According to the Airport Land Use Compatibility Plan (ALUCP) for Thermal Airport, the Project site is not located within the Airport Influence Area Boundary or area affected by aircraft noise per Exhibit JC-1 and JC-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. Project construction would have no adverse effects to neighboring properties. Operational impacts related to traffic noise and nighttime on-site truck movement would be less than significant. 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, according to the Airport Land Use Compatibility Plan (ALUCP) for Thermal Airport, the Project site is not located within the Airport Influence Area Boundary or area affected by aircraft noise per Exhibit JC-1 and JC-3. Thus, the project employees would not be exposed to excessive noise levels. Impacts would be less than significant.

REFERENCES

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 Indio General Plan Noise Element, Table 11-1, September 2019

City of Indio Municipal Code Section 95C.08 (B)(3) of the Indio Municipal Code

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.

Linscott Law and Greenspan, Inc., *Scoping Agreement for Traffic Impact Study,* July 2024.

Riverside County Airport Land Use Commission, *Airport Land Use Compatibility Plan*, Jacqueline Cochran (Thermal Airport), Exhibit JC-1 and JC-3, 2011.

Appendix A

Monitoring Data Sheet and Modeling Results

FIELD NOISE MEASUREMENT DATA

Project Name: Maverick Ind.P Page 1 of
Project #: Day / Date: My Name:

Sound Level Meter	Calibrator	Weather Meter
Model #: Piccolo II	Model #:	Model #: Serial #:
Serial #:	Serial #:	
Weighting: (A) C / Flat	Pre-Test: ____ dBA SPL	Terrain: Hard / Soft / Mixed
Response: (Slow) / Fast / Impl	Post-Test: ____ dBA SPL	Topo: (Flat) / Hilly (describe)
Windscreen: (Yes) / No		Wind: (Steady) / Gusty

ID	Time Start	Time Stop	Leq	Lmin	Lmax	L10	L50	L90	Wind Spd/ Dir (mph)	Temp (°F)	RH (%)	Bar Psr (in Hg)	Cloud Cover (%)
41	8:06	8:21	65.7	54.7	78.6				13/27 NNW	73°	35%	29.81	0%

Roadway Name	Golf Center Pkwy	Avenue 45
Speed (post/obs)		
Number of Lanes	5	4
Width (pave/row)		
1- or 2- way	2	2
Grade		
Bus Stops		
Stoplights	yes	yes
Street Parking	no	
Automobiles	236	74
Medium Trucks	18	9
Heavy Trucks	9	23

Location(s) / GPS Reading(s):

45
38
23

Other Noise Sources: distant (aircraft) (roadway traf) trains / landscaping / rustling leaves / children playing / dogs barking / birds vocalizing

Notes and Sketches on Reverse

Maverik Indio Site 1

Start Date	5/20/2024
Start Time	8:06:13 AM
End Time	8:21:12 AM
Duration	00:14:59
Meas Mode	Single
Input Range	Low
Input Type	Mic
SPL Time Weight	Fast
LN% Freq Weight	dBA
Overload	Yes
UnderRange	No
Sensitivity	18.44mV/Pa

LZeq	86.2
LCeq	80.6
LAeq	65.7
LZFmax	106.0
LCFmax	99.5
LAFmax	78.6
LZFmin	69.0
LCFmin	67.0
LAFmin	54.7
LZE	115.7
LCE	110.1
LAE	95.2
LZpk	114.0
LCpk	108.3
LApk	92.0
LAF1%	74.8
LAF2%	72.7
LAF5%	70.3
LAF8%	69.1
LAF10%	68.6
LAF25%	66.1
LAF50%	63.4
LAF90%	59.5
LAF95%	58.6
LAF99%	57.4

BPG
<Analysis By?>
10 July 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: Maverik Indio Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	56.0	66	56.0	10	----	56.0	0.0	8	-8.0
Receiver2	2	1	0.0	66.2	66	66.2	10	Snd Lvl	66.2	0.0	8	-8.0
Receiver3	3	1	0.0	64.4	66	64.4	10	----	64.4	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

BPG
<Analysis By?>
10 July 2024
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: <Project Name?>
RUN: Maverik Indio With Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	With Barrier Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	56.5	66	56.5	10	----	56.5	0.0	8	-8.0
Receiver2	2	1	0.0	68.0	66	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
Receiver3	3	1	0.0	66.5	66	66.5	10	Snd Lvl	66.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	2	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0