ENVIRONMENTAL NOISE ASSESSMENT
Grocery Outlet Retail Development (APN: 656-020-034)
DESERT HOT SPRINGS, CALIFORNIA

April 24, 2019

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INTRODUCTION AND SUMMARY

This report presents the results of an environmental noise assessment completed for the development of a proposed Grocery Outlet retail development in Desert Hot Springs, California. The project site is located on the west side of Palm Drive opposite its intersection with Park Lane. Surrounding uses include vacant land to the west, commercial, office, and temporary residential uses along with vacant land to the north and east, and a single-family residential mobile home development and vacant land to the south (see Figure 1). The purpose for this noise assessment is to evaluate the compatibility of the development with respect to the environmental noise levels at the project site and evaluate noise impacts upon sensitive receptors in the area.

The findings of this report indicate that the development and operation of the proposed Grocery Outlet retail development will be compatible with the existing and future noise environment and that the operation and use of the proposed Grocery Outlet within the City of Desert Hot Springs standard permitted hours of operation would not result in any significant noise impacts to adjacent noise sensitive uses. Additionally, the operation of the project would not result in a significant increase in traffic noise, and that noise and vibration levels resulting from project construction would not result in significant noise impacts to adjacent noise sensitive uses.

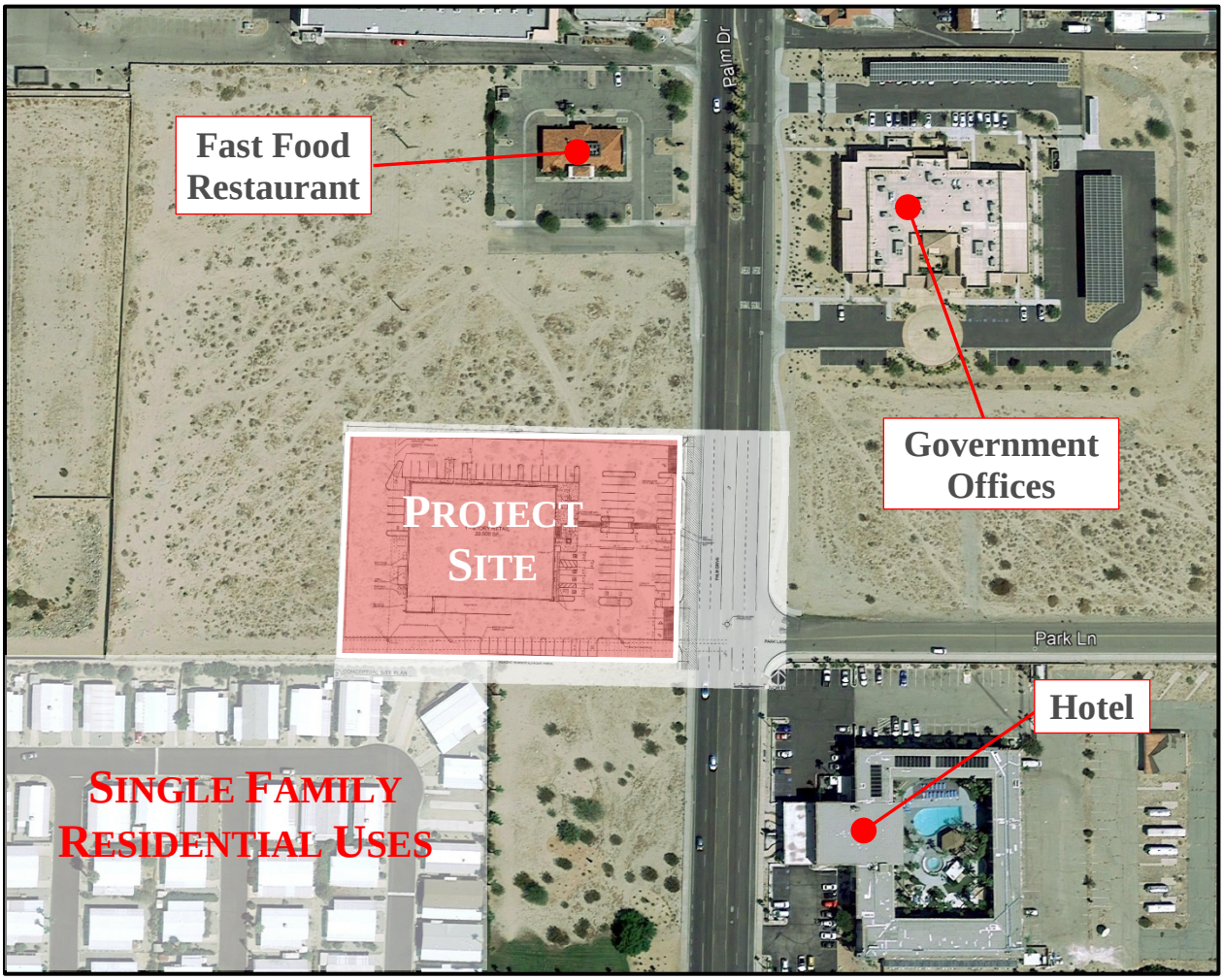

Figure 1: Project Site and Vicinity

The Setting Section of this report presents the fundamentals of environmental noise and vibration, describes local and State regulatory criteria that are applicable in this noise

assessment, and describes the existing noise environment at the project site and vicinity based on a review of noise contour data published in the Desert Hot Springs General Plan. The Impacts and Mitigation Measures Section describes the significance criteria used to evaluate project impacts, provides a discussion of each project impact, and presents mitigation measures, where necessary, allow the development to be compatible with surrounding land uses and to comply with applicable regulatory criteria.

SETTING

FUNDAMENTALS OF ENVIRONMENTAL ACOUSTICS

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its loudness. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales, which are used to describe noise in a particular location. *A decibel (dB)* is a unit of measurement, which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. With this regard a 10-decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly-wide range of intensities, while a 6-decibel increase is considered a readily perceptible, and a 3-decibel increase is a just perceptible change in the existing noise environment. Furthermore, if a sound is 10 decibels or lower than another of similar quality, the addition of the lower sound level to higher would not be additive to the higher level, and would cause no increase in the overall, combined, sound level. Moreover, the addition of two sound levels with the same decibel level and similar sound qualities, will result in an overall combined sound level increase of 3 dBA. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level or dBA.* This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2.

Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq}. The most common averaging period is hourly, but L_{eq} can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

TABLE 1: Definitions of Acoustical Terms Used in this Report

Term	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average A-weighted noise level during the measurement period. The hourly Leq used for this report is denoted as dBA $L_{eq[h]}$.
Day-Night Level, L_{dn}	The equivalent noise level for a continuous 24-hour period with a 10-decibel penalty imposed during nighttime and morning hours (10:00 pm to 7:00 am).
Community Noise Exposure Level, CNEL	CNEL is the equivalent noise level for a continuous 24-hour period with a 5-decibel penalty imposed in the evening (7:00 pm to 10:00 pm) and a 10-decibel penalty imposed during nighttime and morning hours (10:00 pm to 7:00am)
L_1, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level, CNEL,* is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level, DNL or* L_{dn}, is essentially the same as CNEL,

with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

TABLE 2: Typical Noise Levels in the Environment

Common Outdoor Noise Source	Noise Level (dBA)	Common Indoor Noise Source
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), Caltrans, November 2009.

REGULATORY BACKGROUND

The proposed project would be subject to noise-related regulations, plans, and policies established within documents prepared by the State of California and the City of Desert Hot Springs. These planning documents are implemented during the environmental review process to limit noise exposure at existing and proposed noise sensitive land uses. Applicable planning documents include: The California Environmental Quality Act (CEQA) Guidelines, Appendix G, the Noise Element of the Desert Hot Springs General Plan, and the Desert Hot Springs Municipal Code.

State CEQA Guidelines.

The CEQA contains guidelines to evaluate the significance of effects of environmental noise attributable to a proposed project. Under CEQA, noise impacts would be considered significant if the project would result in:

(a) Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or Noise Ordinance, or applicable standards of other agencies;

(b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;

(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

(e) For a project located within 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, if the project would expose people residing or working in the project area to excessive noise levels; or

(f) For a project within the vicinity of a private airstrip, if the project would expose people residing or working in the project area to excessive noise levels.

CEQA does not define what noise level increase would be considered substantial. Typically, project-generated noise level increases of 3 dBA L_{dn} or greater would be considered significant where exterior noise levels would exceed the normally acceptable noise level standard (60 dBA L_{dn} for residential land uses). Where noise levels would remain at or below the normally acceptable noise level standard with the project, noise level increases of 5 dBA L_{dn} or greater would be considered significant.

2016 California Building Cal Green Code, Title 24, Part 11[1],

The Green Building Standards of the State of California Code of Regulations (Title 24, Part 11) establishes mandatory exterior sound transmission control standards for new non-residential buildings as set forth in the 2016 California Green Building Standards Code Sections 5.507.4.1 and 5.507.4.2 Exterior noise transmission as follows2:

5.507.4.1 Exterior noise transmission, prescriptive method. Wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall meet a composite STC rating of at least 50 or a composite OITC rating of no less than 40, with exterior windows of a minimum STC of 40 or OITC of 30 in the following locations:

1 Including changes effective July 1, 2012.

2 Exception: Buildings with few or no occupants and where occupants are not likely to be affected by exterior noise, as determined by the enforcement authority, such as factories, stadiums, storage, enclosed parking structures and utility buildings.

1. Within the 65 CNEL noise contour of an airport.

Exceptions:

1. L_{dn} or CNEL for military airports shall be determined by the facility Air Installation Compatible Land Use Zone (AICUZ) plan.
2. L_{dn} or CNEL for other airports and heliports for which a land use plan has not been developed shall be determined by the local general plan noise element.

2. Within the 65 CNEL or L_{dn} noise contour of a freeway or expressway, railroad, industrial source or fixed-guideway noise source as determined by the Noise Element of the General Plan.

5.507.4.1.1 Noise exposure where noise contours are not readily available. Buildings exposed to a noise level of 65 dB $L_{eq(h)}$ during any hour of operation shall have exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum STC of 40 (or OITC 30).

5.507.4.2 Performance method. For buildings located as defined in Sections A5.507.4.1 or A5.507.4.1.1, wall and roof-ceiling assemblies exposed to the noise source making up the building envelope shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed an hourly equivalent noise level ($L_{eq(h)}$) of 50 dBA in occupied areas during any hour of operation.

5.507.4.2.1 Site features**.** Exterior features such as sound walls or earth berms may be utilized as appropriate to the project to mitigate sound migration to the interior.

5.507.4.2.2 Documentation of compliance. An acoustical analysis documenting complying interior sound levels shall be prepared by personnel approved by the architect or engineer of record.

California Department of Transportation - Construction Vibration.

Caltrans recommends a vibration limit of 0.5 in/sec PPV for buildings structurally sound and designed to modern engineering standards. A conservative vibration limit of 0.25 to 0.30 in/sec PPV has been used for older buildings that are found to be structurally sound but cosmetic damage to plaster ceilings or walls is a major concern. For historic buildings or buildings that are documented to be structurally weakened, a conservative limit of 0.08 in/sec PPV is often used to provide the highest level of protection. These limits have been used successfully and compliance to these limits has not been known to result in appreciable structural damage. All vibration limits referred to herein apply on the ground level and take into account the response of structural elements (i.e. walls and floors) to ground-borne excitation.

Desert Hot Springs General Plan Noise Element

The goal of the Noise Element of the Desert Hot Springs General Plan is to help create, "a noise environment providing peace and quiet that complements and is consistent with the City's spa resort and residential character and the various mix of land uses comprising the community". The following programs and policies contained in the Noise Element are relevant to achieving this goal in relation to the proposed project:

<u>Policies and Programs</u>

Policy 2: Protect noise sensitive land uses, including residences, resorts and community open space, schools, libraries, churches, hospitals and convalescent homes from high noise levels from both existing and future noise sources.

Program 2B: On a project-specific basis, require the installation of soundwalls, earthen berms, wall and window noise insulation and other mitigation measures in areas exceeding the City's noise limit standards.

Policy 3: Project designs shall be required to include measures, which assure that interior noise levels for residential development do not to exceed 45 CNEL, as required by Title 25 (California Noise Insulation Standards).

Program 3A: In areas subject to potentially significant noise impacts, the City shall require new development to monitor and document compliance with all applicable noise level limits.

The Noise and Land Use Compatibility Standards contained in the City's General Plan Noise Element at presented in Table V-2 and indicate that the proposed commercial use of the property would be "normally acceptable" when sites are exposed to noise levels below 65 dBA L_{dn}, "conditionally acceptable" when exposed to noise levels between 60 and 70 dBA L_{dn}, "normally unacceptable" when exposed to noise levels of between 70 and 80 dBA L_{dn} and "clearly unacceptable" when exposed to noise levels above 75 dBA L_{dn}. Table V-2 also indicates that the adjacent residential land uses to the south are considered "normally acceptable" when exposed to noise levels below 60 dBA L_{dn}, "conditionally acceptable" when exposed to noise levels between 55 and 70 dBA L_{dn}, "normally unacceptable" when exposed to noise levels of between 65 and 75 dBA L_{dn} and "clearly unacceptable" when exposed to noise levels above 70 dBA L_{dn}.

Desert Hot Springs Municipal Code

Chapter 8.12 of the Desert Hot Springs Municipal Code contains a qualitative Noise Ordinance to "control and abate unnecessary, excessive and annoying noise and vibration" with in the City. A review of this ordinance has revealed the provisions relative to noise emissions from the construction and operation of the proposed Grocery Outlet retail development:

8.12.020 Definitions.

"Noise disturbance" means any sound that:

1. Endangers the safety or health of any person;
2. Disturbs a reasonable person of normal sensitivities; or
3. Endangers personal or real property.

Permitted hours of operation. Where sound is restricted to "permitted hours of operation," the term means:

1. Monday through Friday, 7:00 a.m. through 6:00 p.m.
2. Saturday, 8:00 a.m. through 6:00 p.m.
3. Sunday, 9:00 a.m. through 5:00 p.m.

8.12.030 Noise disturbances prohibited.

It is unlawful for any person to make, suffer, permit, allow, continue, or cause to be made, suffered, permitted, allowed, or continued, within the City limits or within 200 feet thereof, any noise disturbance.

8.12.090 Limiting noises or vibration to permitted hours of operation.

Notwithstanding any other provisions of this chapter, it is unlawful for any person to cause, suffer, allow, or permit any of the following except during permitted hours of operation:

A. Operation or use of powered model vehicles/planes.
B. Loading and unloading of vehicles, operating of fork lifts or cranes within 1,000 feet of a residence or noise sensitive zone.

C. Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects in such a manner as to cause a noise disturbance across a residential real property boundary.

8.12.100 Construction - Hours of work permitted.

It is unlawful for any person to cause, suffer, allow or permit any construction, drilling or demolition work, or the use of tools or equipment therefor, during those times and on those days that such activities are prohibited pursuant to Section 9.04.030 of this code (see below):

9.04.030 Construction - Hours of work permitted.

A. 1. Except as herein otherwise provided, no person shall be engaged or employed nor shall any person cause any other person to be engaged or employed in any work of construction, erection, alteration, or repair, addition to or improvement of any building, structure, road or improvement to realty between the hours of 5:00 p.m. of each day and 7:00 a.m. of the next day, except when daylight savings time is in effect.

2. During such time as daylight savings time is in effect in the City, no such activities shall be permitted between the hours of 6:00 p.m. of each day and 6:00 a.m. of the next day.

3. No such activities shall be permitted on Sundays.

EXISTING NOISE ENVIRONMENT

Based on a review of the project site plan and information contained in the Desert Hot Springs General Plan Noise Element, the primary source of noise affecting the project site is traffic passing on Palm Drive. A review of the 1994 and General Plan Buildout (2020) noise contours for Palm Drive in the 2000 General Plan shows that land uses within 192 feet of the centerline of the roadway are exposed to an L_{dn} of 70 dBA, those with 407 feet of the roadway centerline experience an L_{dn} of 65 dBA, and those within 874 feet of the roadway centerline experience an L_{dn} of 60 dBA or more. Using these contour distances and the rate of sound attenuation derived from this roadway noise versus distance relationships, we have calculated the background traffic noise exposure on the project site and adjacent uses. The L_{dn} contours developed from this analysis are shown in Figure 2 and indicate that the proposed Grocery Outlet building will be exposed an L_{dn} of between 66 and 70 dBA and the existing residences adjacent to the project site are exposed to L_{dn} levels of between 65 to 68 dBA.

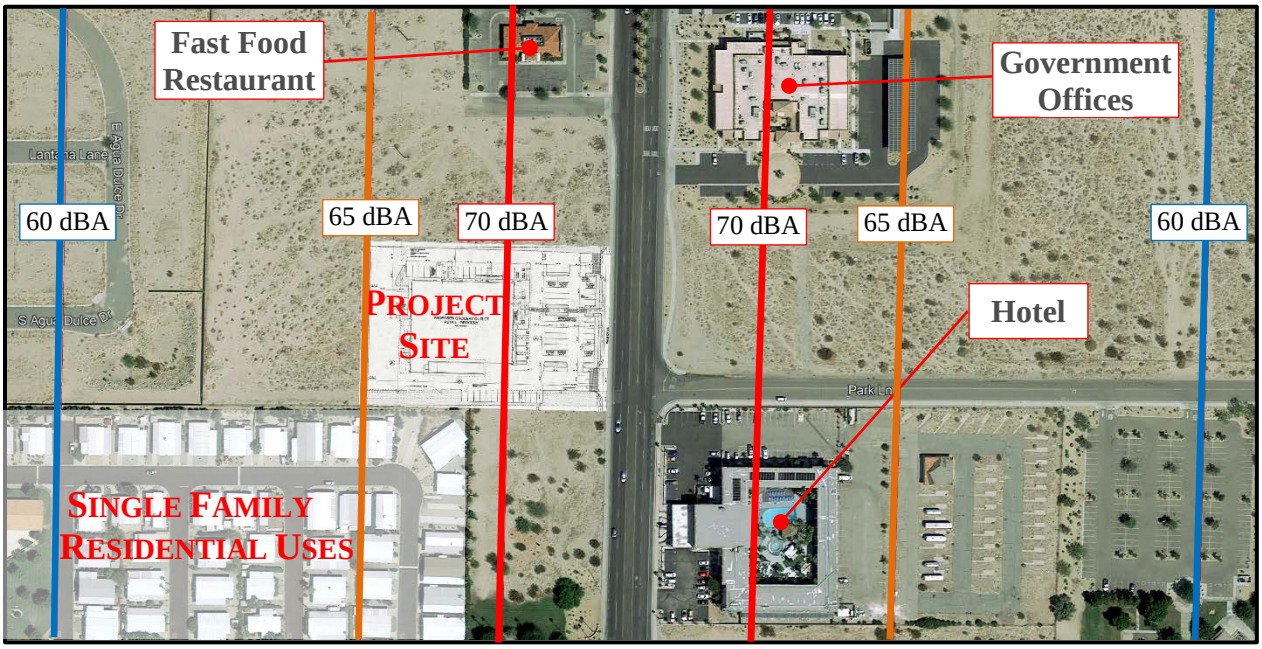

Figure 2: Existing L_{dn} noise contours on the Project Site and Surrounding Areas

FUTURE NOISE ENVIRONMENT

Under future conditions, traffic on Palm Drive is expected to continue to be a major noise source on the project site and in the surrounding area. Based on the traffic noise increases for this roadway between 1994 and the General Plan Build-out (2020) in the Noise Element, we expect that under future conditions the noise environment on the project site and in the adjacent residential uses will be approximately 3 decibels higher than existing noise levels. This would result in land uses within about 515 feet of the centerline of Palm Drive being exposed to an L_{dn} of 65 dBA and those with about 350 feet of the highway centerline will experience an L_{dn} of 70 dBA. Under future conditions, noise associated with the project would generally remain the same as number of deliveries, mechanical equipment use, and hours of operation would not be anticipated to change.

NOISE SENSITIVE USES IN THE SITE VICINITY

Existing uses in the site vicinity include commercial, office, and hotel uses to the north and east across Palm Drive at between 340 and 390 feet from the proposed Grocery Outlet store, and a single-family residential mobile home development on the shared southern property line with homes as close as 80 feet from the proposed Grocery Outlet store. The remainder of the surrounding area is composed of currently vacant desert lands.

The commercial, office, and hotel uses to the north and east across Palm Drive are currently exposed to noise levels of high traffic at between 68 to 72 dBA L_{dn}. Commercial uses are not generally considered to be sensitive to noise from other commercial facilities. Additionally, project operations would need to produce similar high noise levels at 340 to 390 feet to even result in a noticeable change in the noise environment at these uses; the analysis below demonstrates that at this distance project operations will not result in such noise levels. Therefore, this analysis considers that impacts from project generated noise at the commercial, office, and hotel uses to the north and east across Palm Drive do not have the potential to reach a significant level.

The closest noise sensitive residential receptor to the project site are the residences in the mobile home development located on the southwestern property line of the project site. The mobile home community does have a common outdoor use area for residents which is over 600 feet from the proposed Grocery Outlet store, however the closest rear yards of these homes adjacent to the project site are about 70 to 75 feet from the proposed Grocery Outlet store. A review of the roadway noise contours shown in Figure 2 indicate that mobile home development's common outdoor use area is currently exposed to noise levels of 60 dBA L_{dn} or less and that the closest rear yards of these homes adjacent to the project site currently exposed to noise levels of between 65 and 68 dBA L_{dn}. Considering this, while the common outdoor use area of the adjacent residential development is exposed to noise levels considered "normally acceptable" for residential use, by the City's General Plan, the homes adjacent to the project site are exposed to noise levels considered "normally unacceptable" for residential use, by the City's General Plan.

NOISE IMPACTS AND MITIGATION MEASURES

Significance Criteria

Paraphrasing from Appendix G of the CEQA Guidelines, a project would normally result in significant noise impacts if noise levels generated by the project conflict with adopted environmental standards or plans, if the project would expose people to or generate excessive groundborne vibration levels, or if ambient noise levels at sensitive receivers would be substantially increased over a permanent, temporary, or periodic basis. The project is not located within the environs of an airport, so there is no further discussion of aircraft noise.

The following criteria were used to evaluate the significance of environmental noise and vibration resulting from the project:

1. **Noise and Land Use Compatibility:** A significant noise impact would be identified if the project would expose persons to or generate noise levels that would exceed applicable noise standards presented in the Desert Hot Springs General Plan Noise Element or the California Building Code.
   a) *Exterior Noise Levels at Commercial uses:* A significant impact would be identified where noise exposures at exterior commercial use areas on the project site exceed a day-night noise level of 70 dBA L_{dn}.
   b) *Interior noise levels at non-residential uses:* Interior noise levels attributable to exterior sources should not exceed an hourly equivalent noise level ($L_{eq(h)}$) of 50 dBA in occupied areas during any hour of operation.

2. **Groundborne Vibration:** A significant impact would be identified if the construction of the project would expose persons to excessive vibration levels. Groundborne vibration levels exceeding 0.25 in/sec PPV would have the potential to result in cosmetic damage to plaster ceilings or walls in normal buildings.

3. **Project Generated Increases in Noise Levels:** A significant impact would be identified if operations generated by the project would:

   a. Result in a permanent increase in ambient noise levels in the project vicinity above levels existing without the project substantially increase noise levels at sensitive receivers in the vicinity. A substantial increase in permanent would occur the project would result in;
      i) a noise level increase is 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or
      ii) a noise level increase is 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater.
   b. Result in periodic increases in noise levels outside of the City's "permitted hours of operation," which increase in existing noise levels at adjacent noise sensitive uses and per the City's Municipal Code.

4. **Construction Noise Impacts:** A significant noise impact would be identified if construction activities would take place outside of the permitted hours of operation and cause a substantial temporarily increase ambient noise levels at sensitive receivers. Construction noise is typically considered significant when noise from construction activities exceeds hourly average noise levels of 60 dBA $L_{eq(h)}$ and the ambient noise environment by at least 5 dBA $L_{eq(h)}$ for a period of greater than one year or more at exterior areas of noise sensitive residential uses in the project area.

Impact 1: **Noise and Land Use Compatibility of the proposed Commercial Use.** The commercial use proposed on the project site would be exposed to noise levels considered "conditionally acceptable" for such uses by the Desert Hot Springs General Plan Noise Element. However, all proposed uses exposed to these conditionally acceptable noise conditions will be interior to the building and based on an analysis using the performance method of the *California Cal Green Building Code* all interior uses will be exposed to an hourly equivalent noise level ($L_{eq(h)}$) of less than 50 dBA, incompliance with these standards.
This is a less-than-significant impact.

The respective existing and future noise levels at the proposed setback of the Grocery Outlet Building from Palm Drive were found to be 70 dBA and 73 dBA L_{dn}. These noise levels exceed

those that considered to be normally acceptable for commercial uses by the Desert Hot Springs General Plan Noise Element. However, there are no proposed outdoor use areas for commercial patrons proposed, so noise impacts on the use of the facility are evaluated at the interior of the Grocery Outlet Building.

Standard retail and commercial construction typically provides an average of 30 dBA of noise reduction from exterior to interior spaces. Considering this average noise reduction and the typical relationship between peak hour $L_{eq(h)}$ levels and average day/night (L_{dn}) on major roadways or expressways with little nighttime traffic, where the peak hour $L_{eq(h)}$ equals the L_{dn} plus 3 dBA, the peak hour $L_{eq(h)}$ interior noise levels within Grocery Outlet Building due to Palm Drive traffic would be between 43 dBA $L_{eq(h)}$ under existing and 46 dBA $L_{eq(h)}$ under future conditions. Thus, the expected interior noise levels within the proposed Grocery Outlet would meet the 50 dBA $L_{eq(h)}$ Green Building Code using the performance method. Therefore, the proposed interior commercial use is found to be compatible with the site noise environment.

Mitigation Measure 1: None Required.

Impact 2: **Project Noise Generation** Noise due to the operation and use of the proposed commercial on adjacent noise sensitive uses is not expected to significantly increase or alter the existing noise environment at these uses.
This is a less-than-significant impact.

The operation and use of the proposed Grocery Outlet retail use would result in the introduction of noise from building mechanical equipment, trash compaction and collection, along with truck delivery and loading dock activities. These sources of noise and the resulting levels at the residences south of the project site are expected to be as follows:

Building Mechanical Equipment Operations

A review of the project mechanical plans indicates that the rooftop mechanical equipment for the Grocery Outlet building will include two fresh air intake fans in the rear (western) portion of the building, an exhaust fan near the northwest corner of the roof, a small condensing unit near the southeast corner of the roof serving the manager and employee offices, and a 4-fan air cooled Krack Levitor II model LAVA22410 refrigeration condensing unit in the central area of the roof approximately 75 feet from the southern roof edge, and a 10-fan Krack Levitor II model LAVA25410 refrigeration condensing unit in the north central area of the roof approximately 90 feet from the southern roof edge. Though no sound level information is available for the air intake and exhaust fans, or the small condensing units are expected to produce sound levels of between 55 to 65 dBA at 3 feet. The manufacturers estimated sound level rating for the 4-fan Krack Levitor II model LAVA22410 unit is 69 dBA at 10 feet and the manufacturers estimated sound level rating for the 10-fan Krack Levitor II model LAVA25410 unit is 73 dBA at 10 feet. Considering these sound levels and to evaluate a conservative scenario for rooftop mechanical equipment noise to the closest adjacent noise sensitive residential property line, point source hemispherical sound radiation for the rooftop refrigeration units was calculated. Without any noise shielding from the building structure or roof edge parapet wall, the worst-case sound level at the adjacent residential property lines, with all equipment operating, was found to be 51 dBA. With consideration of noise shielding from the building structure or roof edge parapet wall the level of noise produced by the rooftop mechanical equipment at the adjacent residential property lines is expected to be at least 10 dBA lower, or 41 dBA or less.

Considering the typical relationship between daytime and nighttime average (L_{eq}) noise levels and the average day/night (L_{dn}) along on major roadways with little nighttime traffic, where the average daytime L_{eq} level is equal or 1 dBA lower than the L_{dn} and the nighttime average

nighttime L_{eq} level is about 10 dBA lower than the average daytime level, we would estimate the average existing L_{eq} levels at the closest adjacent residences to be 64 to 65 dBA daytime and 54 to 55 dBA nighttime. Considering these expected average noise levels, it is clear that the noise levels produced by the rooftop mechanical equipment at the Grocery Outlet building would be less than the existing average daytime and nighttime noise levels at the closest adjacent residences. Considering this, the expected noise produced by the rooftop mechanical equipment is not expected to result in the average noise level at the closest adjacent residences. Rooftop mechanical equipment noise is therefore considered to be a less than significant noise impact on the adjacent noise sensitive uses.

Trash Collection

Trash collection noise from the proposed project is expected to be dominated by noise from garbage trucks entering the site, traveling on the site drive aisles, maneuvering around the trash bin enclosure, and lifting and resetting the bins. Typical maximum noise levels generated by trash collection trucks are expected to range from 60 dBA when traveling at constant speeds and up to 70 dBA when stopping/starting and maneuvering at a distance of 50 feet. During the trash pick-up discrete maximum noise events, such as setting or inadvertent dropping of empty bins, could reach maximum levels of 80 dBA at 50 feet. Based on a review of the project site plan and drive aisles, constant speed garbage trucks traveling to the trash collection site at the rear of the building along the southern side of the building, could come within 50 feet of the closest residential uses. Considering this distance, noise from constant speed Garbage trucks on the southern side of the building could reach 60 dBA at this closest noise sensitive residential uses.

The project drawings show the trash storage and collection areas to be enclosed by 6-foot high solid masonry walls. A review of the project site plan also shows that truck maneuvering and potential bin drops at this trash collection area at the rear of the building could occur with 100 feet of this closest noise sensitive outdoor use area. Based on this distance and considering that noise generated at the trash collection area would be partially or fully blocked by the building structure between it and the closest adjacent residences, noise levels from maneuvering trucks could also reach 60 dBA at the property lines of the closest adjacent residences and maximum noise from bin drops could reach 63 dBA at these property lines.

Bearing in mind that noise from trash collection activities would produce these heighted noise levels for much less than one hour, the hourly L_{eq} level produced by such activities would be lower. Furthermore, because of the existing high ambient conditions at these closest adjacent residences (estimated at 64 to 65 dBA L_{eq}), trash collection noise at the Grocery Outlet is not expected to result in any increase in the existing average noise levels at adjacent residences. This operational noise source is therefore considered a less than significant noise impact.

Truck Delivery and Loading Dock Noise

The proposed Grocery Outlet store is expected to receive 1 to 2 full-size heavy-duty delivery trucks every week before the store opens at 9 a.m. as well as approximately 6 small to medium sized trucks including one bread truck and two beverage trucks per day. The project proposes to only allow deliveries within the hours permitted by the municipal code of 7:00 a.m. through 6:00 p.m. Monday through Friday, 8:00 a.m. through 6:00 p.m. on Saturday, and 9:00 a.m. through 5:00 p.m. on Sunday.

Trucks will deliver goods to the proposed store at the loading dock on the south side of the building. The dock is designed with a recessed ramp which will allow trucks to back directly to the dock to off load goods directly to the store. Dock seals for the dock to truck interface which will be provided as required by the State energy code will also serve to limit noise transfer form unloading activities into the surrounding environment.

Heavy-duty trucks typically generate maximum instantaneous noise levels of 70 to 75 dBA L_{max} at a distance of 50 feet. Smaller medium sized delivery trucks typically generate maximum noise levels of 60 to 65 dBA L_{max} at the same distance. Low speed truck noise results from a combination of engine, exhaust, and tire noise, as well as the intermittent sounds of back-up alarms and releases of compressed air associated with truck/trailer air brakes. The noise levels produced by backup alarms can vary depending on the type and directivity of the sound, but maximum noise levels are typically between 65 to 75 dBA L_{max} at a distance of 50 feet.

Trucks traveling on the south side of the store to the loading dock and within the docking area may be as close as 50 feet from the noise sensitive residential uses on the southern property line. Considering this distance, maximum unshielded noise levels from heavy-duty trucks could reach 75 dBA and maximum unshielded noise levels from medium sized delivery trucks could reach 65 dBA at these closest noise sensitive uses. Considering that trucks are expected to travel in this area at low speeds (15-20 mph), and that the actual cumulative time in time which maximum noise occurs during the unloading of trucks is typically limited to 1 minute or less, under worst case maximum conditions (with 2 heavy trucks and 6 medium trucks deliveries to the loading area in an hour) the equivalent hourly average noise level at the noise sensitive residential uses on the southern property line could reach 64 dBA L_{eq}. However, under more normal operational conditions, with one truck visiting the loading dock in a given hour, the equivalent hourly average noise level at the noise sensitive residential uses on the southern property line would result in an hourly L_{eq} of 63 dBA with 1 heavy truck delivery in an hour or an hourly L_{eq} of 61 dBA with 1 medium truck delivery in an hour.

These activities are not expected to exceed the existing average noise levels at adjacent residences (estimated at 64 to 65 dBA L_{eq}) and will occur within the City's "permitted hours of operation." Truck deliveries during the City's permitted hours of operation, as defined in the Municipal Code, are considered a less than significant noise impact. Therefore this operational noise source is therefore considered a <u>less than significant noise impact</u>.

Mitigation Measure 2: None Required.

Impact 3: **Project-Generated Traffic Noise.** The proposed project would not substantially increase noise levels on a permanent basis at noise sensitive uses in the vicinity. **This is a less-than-significant impact.**

A significant impact would be identified if traffic generated by the project would substantially increase noise levels at sensitive receivers in the vicinity. A substantial increase would occur if the project traffic on area roadways where to result in a noise level increase of 3 dBA L_{dn} or greater. To result a 3 dBA increase in noise along Palm Drive, the project would have to generate enough traffic to double current highway volume. As an approximately 20,000 square foot grocery store does not have the potential to generate traffic resulting in a doubling of existing traffic volumes on Palm Drive, project-generated traffic noise is considered a <u>less than significant impact</u>.

Mitigation 3: None Required.

Impact 4: **Exposure to Construction Generated Groundborne Vibration.** Existing uses in the vicinity of the project site are not expected to be exposed to perceptible vibration levels from construction activities.
This is a less-than-significant impact.

Construction activities would include site preparation work such as grading and the installation of utilities, foundation work, and new building framing. Construction techniques that generate the highest vibration levels, such as impact or vibratory pile driving, are not expected at this project. Construction activities would generally occur at distances of 80 to 280 feet from the nearest buildings.

Project construction activities such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may generate substantial vibration in the immediate vicinity. Building framing, exterior and interior finishing, and landscaping activities are not anticipated to be sources of substantial vibration. Construction activities may extend over an entire construction season, but construction vibration would not be substantial for most of this time except during vibration generating activities (as discussed above).

Table 3 presents vibration source levels for typical construction equipment at a distance of 80 feet. Jackhammers typically generate vibration levels of 0.01 in/sec PPV, drilling typically generates vibration levels of 0.02 in/sec PPV, and vibratory rollers generate vibration levels of 0.05 in/sec PPV at a distance of 100 feet. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. At distances of 80 feet or greater, construction activities would be well below the 0.25 in/sec PPV cosmetic damage criteria.

TABLE 3: Vibration Source Levels for Construction Equipment[3]

Equipment		**PPV at 80 ft. (in/sec)**
Clam shovel drop		0.06
Hydromill (slurry wall)	in soil	0.002
	in rock	0.005
Vibratory Roller		0.06
Hoe Ram		0.03
Large bulldozer		0.03
Caisson drilling		0.03
Loaded trucks		0.02
Jackhammer		0.01
Small bulldozer		0.001

Therefore, vibration due to project construction is not be expected to be perceptible at any surrounding uses and would result in a less than significant impact.

Mitigation Measure 4: None Required

Impact 5: **Construction Noise.** Existing noise-sensitive land uses in the project vicinity may be temporarily exposed to intermittent construction noise. However, with adherence to the construction day and hour limits outlined in the Desert Hot Springs Municipal Code and the incorporation of standard operational controls and construction best management practices such noise would be reduced thereby minimizing disruption and annoyance. **This is a less-than-significant impact.**

Construction would be conducted in compliance with the City of Desert Hot Springs Municipal Code. Noise impacts resulting from construction depend upon the noise generated by various pieces of construction equipment, the timing and duration of noise-generating activities, and the distance between construction noise sources and noise-sensitive areas. That is, construction noise

[3] PPV at 20 feet calculated based on data from the Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2006.

is variable and usually intermittent. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours).

Construction of the project would generate noise and would temporarily increase noise levels at adjacent existing land uses. Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment operating on site, the timing and duration of noise generating activities, and the distance between construction noise sources and noise sensitive receptors. Construction of the project would involve site improvements, such as the removal of existing site materials, establishment of utilities and foundations, building erection, paving, and landscaping. The hauling of excavated material and construction materials would also generate truck trips on local roadways. Construction activities are typically carried out in stages. During each stage of construction, there would be a different mix of equipment operating. Construction noise levels would vary by stage and vary within stages based on the amount of equipment in operation and location where the equipment is operating. Table 4 lists the typical average noise levels for construction noise by phase of work at a distance of 50 feet. Most demolition and construction generated noise is in the range of 80 to 90 dBA at a distance of 50 feet from the source. These noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor.

TABLE 4: Typical Ranges of $L_{eq(h)}$ Construction Noise Levels at 50 Feet, dBA

Construction Stage	Parking Garage, Commercial, and Retail		**I** - All pertinent equipment present at site, **II** - Minimum required equipment present at site.
	I	**II**	
Ground Clearing	84	84	
Excavation	88	78	
Foundations	88	88	
Erection	79	78	
Finishing	84	84	

Source: U.S.E.P.A., Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.

The closest residential uses to the project site are the residences to the south of the property. The rear property lines of these homes are between 60 and 90 feet from the southern building perimeter. Considering these distances noise levels during the loudest, excavation and finishing work phases would be could reach 84 to 86 dBA L_{eq} when construction activities occur with a clear line of sight to these residences. However, as construction proceeds and moves away from residences, the structure of the building itself will shield the adjacent residences, resulting in lower noise exposures.

The applicant will comply with the construction time limits and the noise mitigation and monitoring provisions identified in the City's Draft Initial Study and Mitigated Negative Declaration (MND) dated January 2019 as follows:

- Pursuant to Section 17.12.230 of the Municipal Code[4], restrict noise-generating activities including construction traffic at the construction site or in areas adjacent to the construction

[4] It should be noted that construction time limits in Section 17.12.230 of the Municipal Code are intended for parcels with VSV (Visitor Serving Village) zoning designations. These construction time limits are more restrictive than the general, City wide, construction time limits in Section 9.04.030 of the Municipal Code. According to the City's existing Land Use map the site is zoned C-N (Neighborhood Commercial), this zoning designation does not have construction time limits, so the City wide, construction time limits in Section 9.04.030 are applicable for the project. However, in recognition of the potential construction noise disturbance on the adjacent residential uses this noise assessment considers the implementation of the stricter construction time limits in the MND to be appropriate for the project.

site to the hours of 7:00 a.m. and 6:00 p.m. with no on Sundays or national holidays during summer month (June-November) and between the hours of 8:00 a.m. and 5:00 p.m. with no construction on Saturdays, Sundays or national holidays during winter months (December-May).

- Stationary equipment shall be placed such that emitted noise is directed away from the residential development (MND NOI-1).
- Stockpiling and vehicle staging areas shall be located on the commercial parcel, as far from residential development as possible (MND NOI-2).
- All construction equipment shall be equipped with properly functioning mufflers. Construction equipment shall not be permitted to idle along the south boundary of the site (MND NOI-3).
- The project proponent shall prepare and submit a construction management plan prior to the issuance of grading permit. The plan shall include the location of all staging areas, and the methods by which equipment operations shall be monitored. The plan shall be approved by the City prior to the issuance of grading permits (MND NOI-A).

Based on the information above, although noise generated by construction activities will temporarily elevate noise levels at adjacent noise-sensitive receptors, by comply with the City's construction time limits and construction noise mitigation measures identified in the Project Mitigated Negative Declaration the impacts associated with construction equipment will be reduced to less than significant levels.

Mitigation Measure 5: No additional measures required.

Impact 6: Cumulative Noise. Noise levels on the site and surroundings are not expected to significantly increase under future cumulative conditions. **This is a less-than-significant impact.**

Noise levels in the project area may increase in the future as a result of cumulative growth in and around the project site. Noise associated with the project itself is expected to remain the same under future conditions as on-site operational noise sources and number of truck deliveries are not anticipated to change. There are no projections available to future growth in the immediate project vicinity, and increases in area noise levels under future, cumulative, conditions are expected to primarily result from increased traffic on Palm Drive. Traffic volumes on Palm Drive would need to double to result in a 3 dBA increase in noise along this roadway. Therefore, increases in noise levels on the project site or surrounding uses under future, cumulative, conditions is considered a less than significant impact.

Mitigation Measure 6: None Required