4.7 Noise

4.7.1 Summary

Table 24 summarizes the identified environmental impacts, proposed Mitigation Measures, and residual impacts of the proposed project with regard to noise. Additional detail is provided in Section 4.1.3 (Impact Analysis).

Table 24 Impact and Mitigation Summary: Noise

Impact	Mitigation Measures	Residual Impact
Impact N-1. Noise from project construction activities would generate high levels of noise that could adversely impact existing nearby hotel units and residences. Impacts would be significant but mitigable.	**N-1 Construction Noise Mitigation** The following Mitigation Measure shall be implemented and adhered to by the project applicant and their construction contractor(s) to reduce noise generated from project construction activities: ▪ **Construction Equipment.** Construction equipment shall be properly maintained and in good condition. All internal combustion engine driven machinery will use intake and exhaust mufflers and engine shrouds, as applicable. Equipment engine shrouds shall be closed during equipment operation. Whenever feasible, electrical power shall be used to run air compressors and similar power tools rather than diesel equipment. The developer shall require all contractors, as a condition of contract, to maintain and tune-up all construction equipment to minimize noise emissions. ▪ **Vehicle and Equipment Idling.** Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use. ▪ **Stationary Equipment.** Stationary construction equipment that generates noise that exceeds 60 dBA Leq at the boundaries of the nearby residential uses shall be shielded. Temporary noise barriers used during construction activity shall be made of noise-resistant material sufficient to achieve a Sound Transmission Class (STC) rating of STC 40 or greater, based on sound transmission loss data taken according to ASTM Test Method E90. Such a barrier may provide as much as a 10 dB insertion loss, provided it is positioned as close as possible to the noise source or to the receptors. To be effective, the barrier must be long and tall enough (a minimum height of eight feet) to completely block the line-of-sight between the noise source and the receptors. The gaps between adjacent panels must be filled-in to avoid having noise penetrate directly through the barrier. The recommended minimum noise barrier or sound blanket requirements would reduce construction noise levels by at least 10 dB. The equipment area with appropriate acoustical shielding shall be designated on building and grading plans. Equipment and shielding shall remain in the designated location throughout construction	Implementation of Mitigation Measure N-1 would reduce impacts to a less than significant level.

Impact	Mitigation Measures	Residual Impact
	activities. ▪ **Disturbance Coordinator.** A noise disturbance coordinator shall be designated by the contractor. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures warranted to correct the problem be implemented. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site. ▪ **Construction Activities:** Construction activities with the potential to generate noise shall only occur Monday through Saturday between the hours of 7:30 AM and 6 PM. **Monitoring Action:** Prior to issuance of grading permits, the project proponent shall submit building and grading plans that show the appropriate construction equipment noise reduction measures to the County of Monterey Planning Department. Compliance shall be monitored by County Building Inspectors.	
Impact N-2. Project construction would intermittently generate groundborne vibration on and adjacent to the site. This may affect receptors near the project site, but would not create excessive levels of vibration that could cause structural damage or disturb sleep at nearby sensitive receptors. Impacts would be less than significant.	As impacts would be less than significant, no mitigation is required. However, it should be noted that Mitigation Measure GEO-2 would require the minimization of construction-related vibration impacts of ground improvement techniques to be located no closer than 20-feet of any existing, adjacent structures or fuel tanks.	With the Implementation of Mitigation Measure GEO-2, impacts would be less than significant.
Impact N-3. Occupants of existing nearby sensitive receptors would not experience roadway noise level increases exceeding applicable thresholds as a result of project-generated traffic. Impacts would be less than significant.	No mitigation is required.	Impacts would be less than significant.
Impact N-4. Project operation would introduce new noise sources typical of proposed convenience market/grocery store and retail uses to the site. New noise sources would be similar to those of existing adjacent uses and would not result in a noise environment incompatible with existing uses. Impacts would be less than significant..	No mitigation is required.	Impacts would be less than significant.

4.7.2 Setting

a. Overview of Noise

Noise level (or volume) 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 has no effect on ambient noise. 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, such as industrial machinery. Noise from lightly traveled roads typically attenuates at a rate of about 4.5 dBA per doubling of distance. Noise from heavily traveled roads typically attenuates at about 3 dBA per doubling of distance. Noise levels may also be reduced by intervening structures; generally, a 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 is generally 30 dBA or more (FTA, 2006).

Land forms and man-made structures have complex effects on sound transmission and on noise contours. Generally, barriers between a source and receiver absorb or reflect noise resulting in a quieter environment. Where barriers or land forms do not interrupt the noise transmission path from source to receiver, noise contours, such as those provided in the County's General Plan, prove to be good estimates of the average noise level from roadway traffic. In areas where barriers or land forms interrupt the sound transmission, the noise contours overestimate the extent to which a source intrudes into the community. The Monterey County General Plan noise contour distances, as shown in Figure 10C in the General Plan, depict worst-case conditions because they do not account for any obstructions to the noise path, such as walls, berms, or buildings.

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 power 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 PM to 7 AM) 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 PM to 10 PM and a 10 dBA penalty for noise occurring from 10 PM to 7 AM Noise levels described by Ldn and CNEL usually do not differ by more than 1 dB.

The relationship between peak hourly Leq values and associated Ldn values depends on the distribution of traffic over the entire day. There is no precise way to convert a peak hourly Leq to Ldn. However, in urban areas near heavy traffic, the peak hourly Leq is typically 2-4 dBA lower than the daily Ldn. In less heavily developed areas, such as suburban areas, the peak hourly Leq is often roughly equal to the daily Ldn. For rural areas with little nighttime traffic, the peak hourly Leq will often be 3-4 dBA greater than the daily Ldn value (California State Water Resources Control Board [CSWRCB] 1999). The project site is located in a suburban area; therefore, the peak hourly Leq at the project site is approximately equivalent to the daily Ldn value.

b. Fundamentals of Groundborne Vibration

Vibration is sound radiated through the ground. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. Excessive vibration can be a serious source of human disturbance and can also result in physical damage to buildings. Groundborne vibration related to human annoyance is generally measured as root mean square (RMS) velocity levels expressed in vibration decibels (VdB); construction-related groundborne vibration in relation to its potential for building damage can also be measured in inches per second (in/sec) peak particle velocity (PPV) (Federal Transit Administration 2006). As with noise, distance attenuates groundborne vibration. Vibration levels decrease by about 6 VdB with every doubling of distance (FTA 2006).

The background vibration velocity level in residential and educational areas is usually around 50 VdB. (FTA 2006). The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible.

c. Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with each of these uses. The County of Monterey 2010 General Plan Noise Element, which is contained in the General Plan Safety Element, identifies normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable noise levels for a variety of land use and development types based on the Office of Planning and Research (OPR) General Plan Guidelines. The most noise sensitive land uses include residences, hotels, schools, libraries, churches, hospitals, and nursing homes. The nearest sensitive receptors to the site are mixed-use (offices/residences) buildings located approximately 30 feet east of the project boundary, and the lodging use/inn, located directly northwest of the site, behind the Chevron gas station. The inn's parking lot provides an approximately 60-foot buffer between the project site's eastern boundary

and the motel units. The motel's pool area is flanked by motel buildings to the north and east, which effectively block the line of site from the project site to the pool area.

d. Existing Noise Levels

The project would be built and operated on an approximately 3.8-acre parcel in a developed area near the mouth of Carmel Valley. The project site is adjacent to a Chevron gas station, an existing lodging use/inn, the Crossroads Shopping Center, and professional offices and mixed (office/residential) uses. The site and adjacent area is generally flat without landforms that would impede noise from surrounding uses from reaching the site. The primary source of noise on the project site and in the surrounding area is traffic on Rio Road, which is located immediately adjacent and south of the project site. The secondary source of noise is traffic on Highway 1, which is approximately 375 feet northwest of the project site at its closest to the project site.

Other major roadways near the site include Carmel Valley Road, located approximately 1,000 feet to the north, and Carmel Rancho Boulevard, located approximately 850 feet to the east. Motor vehicle noise can be of concern because it is characterized by a high number of individual events, which often create a sustained noise level.

The County of Monterey 2010 General Plan Noise Element includes existing and projected noise contours associated with airports, stationary sources, and roadway sources, which provide a visualization of sound level estimates. The project site is not within any identified noise contour in the 2010 General Plan for Highway 1, Carmel Valley Road, Carmel Rancho Boulevard, or Rio Road. To characterize existing noise levels at the project site and in the vicinity, four 15-minute noise measurements were taken during the weekday afternoon peak hour on September 5, 2017 using an ANSI Type II Integrating sound level meter.

Table 25 summarizes the results of the noise measurements. Existing noise levels range from approximately 51 dBA Leq to 64 dBA Leq; see Figure 23 for a map of the noise measurement locations and Appendix I for the noise meter data.

Table 25 Sound Level Measurement Results (dBA Leq)

Measurement Location	Primary Noise Source	Sample Time	Measured Noise Level (dBA Leq)
Location 1: Northwest corner of project site, adjacent to the existing inn	Roadway traffic along Rio Road	4:05-4:20 PM	54
Location 2: Southeast corner of project site	Roadway traffic along Rio Road	4:28-4:43 PM	60
Location 3: Fire Station	Roadway traffic along Rio Road	4:55-5:10 PM	51
Location 4: North side of Rio Road, near Birch Place (west of the project site)	Roadway traffic along Rio Road	5:26-5:41 PM	64

See Appendix I for sound level measurement locations and data sheets.

Source: Field visit conducted by Rincon Consultants, Inc. on September 5, 2017 using ANSI Type II Integrating sound level meter

Figure 23 Noise Measurement Locations

4.7.3 Regulatory Setting

State

California Government Code §65302

California Government Code §65302 encourages each local government entity to implement a noise element as part of its general plan. The Governor's Office of Planning and Research (OPR) has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. In addition, Title 24 of the California Health and Safety Code establishes an interior noise standard of 45 dBA for habitable dwelling units, excluding single family homes.

Local

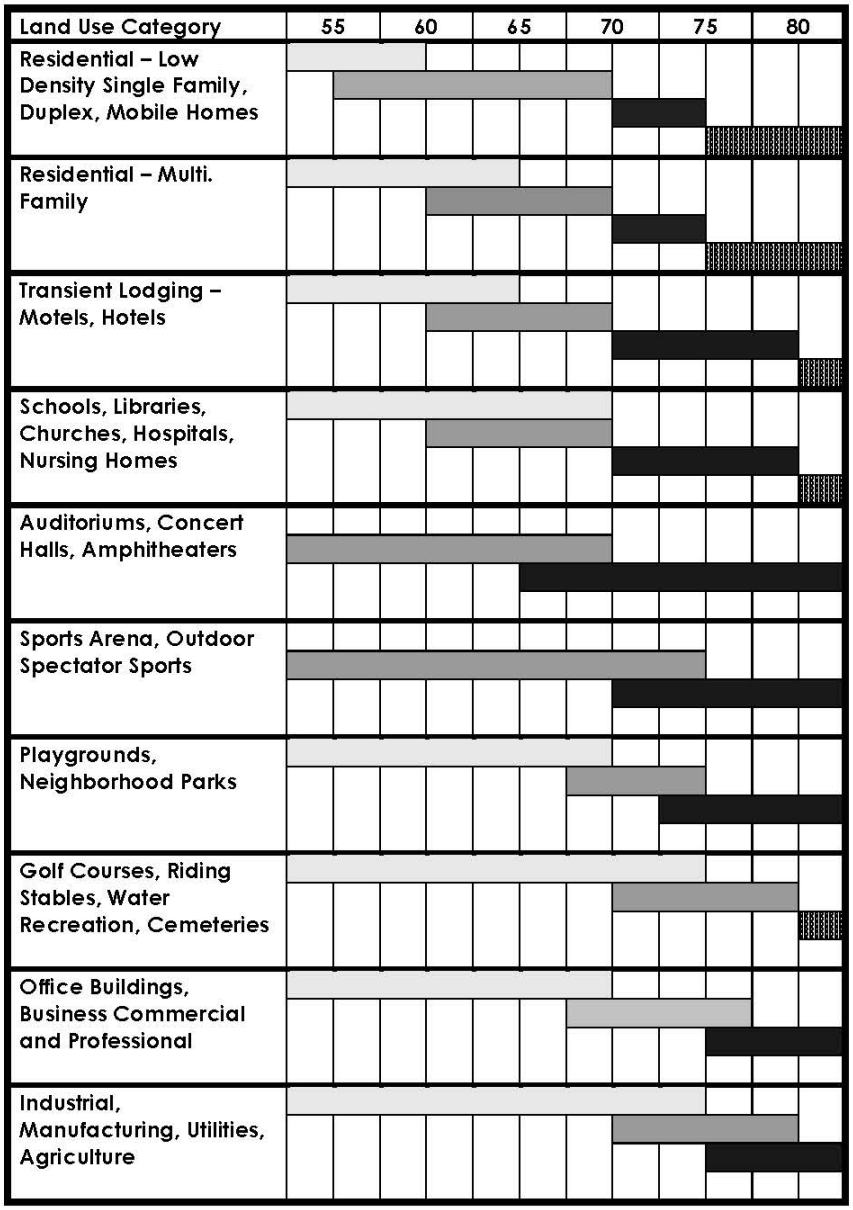
Monterey County General Plan

The County of Monterey 2010 General Plan incorporates policies regulating noise in its Safety Element. There, it identifies normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable noise levels for a variety of land use and development types, based on OPR General Plan Guidelines. Figure 24 shows the County of Monterey community noise exposure levels.

The County of Monterey 2010 General Plan Safety Element also includes policies that are designed to meet General Plan Goal S-7, to "maintain a healthy and quiet environment free from annoying and harmful sounds." These policies address requirements for new noise-sensitive land uses, development in areas that may be exposed to high levels of noise, construction of new noise-generating uses, procedures for acoustical analysis and environmental review, regulations for construction activity and the use of heavy construction equipment, and standard noise protection measures for new construction. Applicable policies include the following:

1. S-7.2 Proposed development shall incorporate design elements necessary to minimize noise impacts on surrounding land uses and to reduce noise in indoor spaces to an acceptable level.
2. S-7.3 Development may occur in areas identified as "normally unacceptable" provided effective measures to reduce both the indoor and outdoor noise levels to acceptable levels are taken.
3. S-7.4 New noise generators may be allowed in areas where projected noise levels (Figure 10) are "conditionally acceptable" only after a detailed analysis of the noise reduction requirements is made and needed noise mitigation features are included in project design.
4. S-7.5 New noise generators shall be discouraged in areas identified as "normally unacceptable." Where such new noise generators are permitted, mitigation to reduce both the indoor and outdoor noise levels will be required.
5. S-7.8 All discretionary projects that propose to use heavy construction equipment that has the potential to create vibrations that could cause structural damage to adjacent structures within 100 feet shall be required to submit a pre-construction vibration study prior to the approval of a building permit. Projects shall be required to incorporate specified measures and monitoring identified to reduce impacts. Pile driving or blasting are illustrative of the type of equipment that could be subject to this policy.

Figure 24 Monterey County Community Noise Exposure Guidelines (Ldn or CNEL)



INTERPRETATION:

Normally Acceptable
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply or air conditionina will

Normally Unacceptable
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable
New construction or development should generally not be undertaken.

6. S-7.9 No construction activities pursuant to a County permit that exceed "acceptable" levels listed in Policy S-7.1 shall be allowed within 500 feet of a noise sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays, prior to completion of a noise mitigation study. Noise protection measures, in the event of any identified impact, may include but not be limited to:
   a. Constructing temporary barriers, or
   b. Using quieter equipment than normal.
7. S-7.10 Construction projects shall include the following standard noise protection measures:
   a. Construction shall occur only during times allowed by ordinance/code unless such limits are waived for public convenience
   b. All equipment shall have properly operating mufflers; and
   c. Lay-down yards and semi-stationary equipment such as pumps or generators shall be located as far from noise-sensitive land uses as practical.

Monterey County Code, Chapter 10.60 Noise Control

The Monterey County Code, Chapter 10.60 – Noise Control, also regulates noise. Section 10.60.010 states, "This Board finds that noises generated so as to be in excess of the levels permitted in this Chapter impair hearing, impede convalescence, hinder concentrated mental effort, interfere with relaxation and sleep, depreciate property values, and cause stress and nervous tension and consequent irritability, insomnia, accident proneness, and increased risk for cardiovascular disease and hypertension." Section 10.60.030 prohibits operating anything that exceeds a noise level of 85 dBA as measured 50 feet therefrom unless it is operated at least 2,500 feet from occupied residential dwelling units. Section 10.60.040 restricts nighttime (10 PM to 7 AM) exterior noise levels to a maximum hourly equivalent sound level (Leq) of 45 dBA or peak sound level of 65 dBA.

4.7.4 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

The analysis of noise impacts considers the effects of temporary construction-related noise, including demolition of the existing on-site shed and construction activities, and operational noise associated with long-term project-related activities, including project-generated traffic as well as stationary source noise.

Construction

NOISE

Construction noise was estimated using the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM) software. The RCNM uses baseline noise levels, distances to noise-sensitive receptors, shielding information, and anticipated construction equipment to calculate the level of construction noise from each piece of construction equipment and overall construction noise at each receptor. To calculate noise generated by each piece of equipment, the model uses reference equipment noise levels from a study done by the EPA and acoustical usage

factors for equipment (i.e., the fraction of time each equipment is operating at full power) from the Empire State Electric Energy Research Corp. Guide (FHWA 2006).

To determine noise from construction of the project, noise was modeled for the sensitive receptors nearest to the project construction site, located approximately 30 feet to the east of the project boundary (mixed-use with residences) and 60 feet west of the project boundary (existing inn/lodging use). This analysis assumed that, on average, construction activities would take place at least 50 feet internal to the project boundary because construction equipment would not remain stationary and located at the project boundary throughout project construction, but would be used throughout the 3.8-acre site. As such, the modeled distance to the nearest noise-sensitive receptors was 80 and 110 feet, respectively. Measured noise at Location 2 (60.1 Leq) was used as the baseline noise level for the residential receptor, and measured noise at Location 1 (53.8 Leq) was used as the baseline noise level for the inn. Noise was modeled for site preparation, grading, building construction, and paving phases. The project would not involve substantial demolition, as the only existing structure is a shed. Architectural coating phase was not modeled because it would involve operation of only air compressors, which would generate noise levels less than the equipment required for other phases, such as backhoes and scrapers during the grading phase (FHWA 2006). The equipment list for each construction phases was taken from CalEEMod outputs (see Section 4.2, *Air Quality*). Construction equipment is listed in the winter and summer CalEEMod results (Appendix B) under Section 3.0, Construction Detail. RCNM inputs and results are provided in Appendix I.

Pursuant to Mitigation Measure GEO-2a, as described in Section 4.5, *Geology and Soils*, site preparation may include vibro replacement stone column techniques to reduce liquefaction potential. These techniques are typically performed with a vibrating column suspended from a crane. The noise levels that would be generated from operation of a crane would be consistent with other heavy construction equipment modeled in this analysis, such as a backhoe or grader. Therefore, this noise analysis accounts for the noise that could also be generated from vibro replacement stone column techniques.

VIBRATION

Vibration impacts were analyzed by modeling vibration levels caused by the highest-impact equipment anticipated to be used during project construction at the nearest residential receptor. Vibration levels were calculated using methodology provided in the FTA's *Transit Noise and Vibration Assessment.* Vibration levels were determined using reference vibration levels for construction equipment at 25 feet (FTA 1995) and the distance from to the nearest sensitive receptor, assuming a 6-VdB attenuation per doubling of distance to the receptor. It was assumed that construction activity would occur on average at least 50 feet internal to the project boundary because construction equipment would not remain stationary and located at the project boundary throughout project construction, but would be used throughout the 3.8-acre site. As the nearest sensitive receptor is located approximately 30 feet from the project boundary, 80 feet was used as the modeling distance. See Appendix I for calculations of vibration impacts.

TRAFFIC

Roadway noise was modeled using the Housing & Urban Development Exchange Day/Night Noise Level Calculator (DNL Calculator) at two sensitive receptors along Rio Road: in front of the mixed-use building on the north side of Rio Road to the east of the project site, and in front of a single-family house located on the southwest corner of Rio Road and Highway 1. Appendix I includes a map of the modeled locations and DNL Calculator worksheets. These two sensitive receptors are

located along road segments expected to experience substantial project-generated traffic volumes and that currently experience higher volumes of traffic. Therefore, the sites are currently exposed to higher levels of roadway noise. Roadway noise was modeled for existing conditions, existing plus project conditions, cumulative conditions, and cumulative plus project conditions. Cumulative conditions include other projects for which an application or pre-application has been submitted to the applicable municipality in the area and are pending approval and projects that have been approved in the area but not yet constructed.

The DNL Calculator calculates the noise level at a particular location based on a site's distance from roadways, railways, and airports and specific features associated with each transportation noise source. For roadways, the key inputs are the Average Daily Trips (ADT) of nearby roadways, distance of the receptor to the centerline of the roadway, and average roadway speed; no railways or airports are located near the project site and were not included in modeling. ADT for nearby roadways were derived from weekday PM peak hour traffic volumes provided in the traffic study prepared for the project by Keith Higgins Traffic Engineer (KHTE) in December 2017 (KHTE 2017). In accordance with standard industry assumptions for traffic in this type of urban/suburban setting, it was assumed that PM peak hour traffic comprises 10 percent of ADT. It was also assumed that cars comprised 95 percent of ADT, medium duty trucks comprised three percent of ADT, and heavy duty trucks comprised two percent of ADT. Distances to roadways and roadway speed limits were determined using Google Earth.

Significance Thresholds

Pursuant to Appendix G of the *State CEQA Guidelines*, potentially significant impacts would occur if the project would result in any of the following conditions:

1. 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;
2. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
5. 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, would the project expose people residing or working in the project area to excessive noise levels; and/or
6. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

The project site is not located within any airport noise impact contours and would therefore not expose residents or workers to excessive noise levels from airport or private air strip operations. The nearest airport is the Monterey Regional Airport, located approximately 4.25 miles northeast of the project site. Further discussion regarding thresholds 5 and 6 can be found in Section 4.9, *Effects Found Not to be Significant.*

Construction

NOISE

For construction noise, impacts are considered significant if they would conflict with applicable noise restrictions contained in the County's Municipal Code (MC) and General Plan policies:

- MC Section 10.60.030: Restricts operation of any machine, mechanism, device, or contrivance which produces a noise level of 85 dBA as measured 50 feet therefrom.
- MC Section 10.60.040: Prohibits activity that would cause exterior noise levels during nighttime hours (10 PM to 7 AM) to exceed an hourly equivalent sound level (Leq) of 45 dBA or peak sound level of 65 dBA.
- General Plan Policy S-7.9: No construction activities pursuant to a County permit that exceed "acceptable" levels listed in Figure 24 (i.e., Community Noise Exposure Guidelines) shall be allowed within 500 feet of a noise sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays, prior to completion of a noise mitigation study.

VIBRATION

The Federal Railroad Administration (FRA) provides the following thresholds for assessing groundborne vibration impacts:

- 65 VdB where low ambient vibration is essential for interior operations, such as hospitals and recording studios
- 72 VdB for residences and buildings where people normally sleep, including hotels
- 75 VdB for institutional land uses with primary daytime use, such as churches and schools
- 95 VdB for physical damage to extremely fragile historic buildings
- 100 VdB for physical damage to buildings

Project vibration impacts would be considered significant if they cause vibration levels exceeding 72 VdB at the adjacent inn and mixed-use buildings during evening hours, or exceed the threshold for physical damage to buildings.

Operation

For operational noise, impacts are considered significant if they would conflict with applicable noise restrictions contained in the Monterey County Code (MCC) and General Plan policies:

- MCC Section 10.60.030: Operation of any machine, mechanism, device, or contrivance which produces a noise level of 85 dBA as measured 50 feet therefrom.
- MCC Section 10.60.040: Causes exterior noise levels during nighttime hours (10 PM to 7 AM) to exceed an hourly equivalent sound level (Leq) of 45 dBA or peak sound level of 65 dBA.

Traffic

For traffic-related noise, impacts are considered significant if project-generated traffic would result in exposure of sensitive receptors to an unacceptable increase in noise levels. In the absence of County regulations for traffic-related noise sources, or standards for long-term increases in ambient noise above existing conditions, recommendations contained in the *Transit Noise and Vibration Impact Assessment* (FTA 2006) were used to determine whether increases in traffic noise would be

acceptable. With these standards, the allowable noise exposure increase is reduced with increasing ambient existing noise exposure, such that higher ambient noise levels have a lower allowable noise exposure increase. Table 26 shows the significance thresholds for increases in traffic-related noise levels caused by the project.

Table 26 Significance of Changes in Operational Roadway Noise Exposure

Existing Noise Exposure (dBA Ldn or Leq)	Allowable Noise Exposure Increase (dBA Ldn or Leq)
45-50	7
50-55	5
55-60	3
60-65	2
65-74	1
75+	0

Source: FTA 2006

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the project in 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?
Threshold 4:	Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

IMPACT N-1 NOISE FROM PROJECT CONSTRUCTION ACTIVITIES WOULD GENERATE HIGH LEVELS OF NOISE THAT COULD ADVERSELY IMPACT EXISTING NEARBY HOTEL UNITS AND RESIDENCES. IMPACTS WOULD BE SIGNIFICANT BUT MITIGABLE.

The main sources of noise during construction would be heavy machinery used in grading and clearing of the site, as well as equipment used during building construction and paving. Table 27 lists typical noise levels associated with construction equipment that would likely be used during project construction at a distance of 50 feet, as described by the FTA (2006). The table also shows the attenuated noise levels at the two nearest sensitive receptors. As described above, the modeled distance to these nearest noise-sensitive receptors was 80 and 110 feet, respectively, based on the assumption that, on average, construction activities would take place at least 50 feet internal to the project boundary.

Table 27 Typical Construction Equipment Noise Levels

Project Equipment	Typical Maximum Noise Level (dBA)		
	50 Feet from the Source	Mixed-Use Residences (80 Feet from the Source)	Lodging Use (110 Feet from the Source)
Air Compressor	81	77	74
Backhoe	80	76	73
Paver	89	85	82
Concrete Mixer	85	81	78
Dozer	85	81	78
Roller	74	70	67
Grader	85	81	78
Scraper	89	85	82
Truck	88	84	81

Source: Table 12-1 in FRA 2006.

Noise levels based on actual maximum measured noise levels at 50 feet (Lmax).

Noise levels assume a noise attenuation rate of 6 dBA per doubling of distance.

As shown in Table 27, several pieces of construction equipment generate noise levels in excess of 85 dBA at distances of 50 feet. As described above MMC Section 10.60.030 restricts operation of any machine, mechanism, device, or contrivance which produces a noise level of 85 dBA as measured 50 feet from the machine or device. However, as the table shows, at the nearest sensitive receptor, the mixed-use residential receptor, noise generated from each piece of equipment would attenuate below 85 dBA, with the exception of the paver and scraper. These would attenuate to 85 dBA at the receptor. However, construction would be temporary and short term, and the paver and scraper would not be used continuously throughout construction. Thus, the short-term exceedances of the noise standards established by MMC Section 10.60.030 would have less than significant impacts.

As described above, construction activities would cause a temporary increase in ambient noise levels in and around the project site. Construction typically occurs in several distinct phases, each of which has its own unique noise characteristics. To determine the project's noise impacts to nearby sensitive receptors during each phase of construction, noise was modeled at the nearest noise-sensitive receptors to the site using the RCNM, as described above. The modeled distance to these nearest noise-sensitive receptors was 80 and 110 feet, respectively, based on the assumption that, on average, construction activities would take place at least 50 feet internal to the project boundary.

Table 28 shows the combined noise levels from multiple active pieces of construction equipment during different construction phases in dBA Leq/ CNEL. As discussed under Section 4.13.1, *Setting*, Leq and CNEL are roughly interchangeable in a suburban environment. Project construction would generate noise levels as high as 82.4 dBA Leq/CNEL during construction at the nearest receptor, located 80 feet from construction activities. This would exceed the acceptable level of 65 dBA CNEL for multi-family residential and transient lodging uses established in the Community Noise Exposure Guidelines.

Table 28 Project Construction Noise

	Noise Levels (dBA Leq/ CNEL)	
	Mixed-Use Residences (80 Feet from Construction Activity)	Lodging Use (110 Feet from Construction Activity)
Site Preparation	80.9	78.2
Grading	80.8	78.0
Building Construction	82.4	79.6
Paving	81.9	79.6

See Appendix I for RCNM worksheets.

Consistent with General Plan Policy S-7.9, construction activities would not be conducted on Sundays or holidays, and would not be conducted during the evening hours on Monday through Saturday. This would prevent increased noise levels during construction from occurring during the hours when most people sleep or are most sensitive to noise. Nonetheless, exceedance of the Community Noise Exposure Guidelines, as stated above, would be potentially significant but mitigable.

Mitigation Measures

The following Mitigation Measure is required to reduce noise impacts resulting from project construction activities.

N-1 Construction Noise Mitigation

The following Mitigation Measure shall be implemented and adhered to by the project applicant and their construction contractor(s) to reduce noise generated from project construction activities:

- **Construction Equipment.** Construction equipment shall be properly maintained and in good condition. All internal combustion engine driven machinery will use intake and exhaust mufflers and engine shrouds, as applicable. Equipment engine shrouds shall be closed during equipment operation. Whenever feasible, electrical power shall be used to run air compressors and similar power tools rather than diesel equipment. The developer shall require all contractors, as a condition of contract, to maintain and tune-up all construction equipment to minimize noise emissions.
- **Vehicle and Equipment Idling.** Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use.
- **Stationary Equipment.** Stationary construction equipment that generates noise that exceeds 60 dBA Leq at the boundaries of the nearby residential uses shall be shielded. Temporary noise barriers used during construction activity shall be made of noise-resistant material sufficient to achieve a Sound Transmission Class (STC) rating of STC 40 or greater, based on sound transmission loss data taken according to ASTM Test Method E90. Such a barrier may provide as much as a 10 dB insertion loss, provided it is positioned as close as possible to the noise source or to the receptors. To be effective, the barrier must be long and tall enough (a minimum height of eight feet) to completely block the line-of-sight between the noise source and the receptors. The gaps between adjacent panels must be filled-in to avoid having noise penetrate directly through the barrier. The recommended minimum noise barrier or sound blanket requirements would reduce construction noise levels by at least 10 dB.

The equipment area with appropriate acoustical shielding shall be designated on building and grading plans. Equipment and shielding shall remain in the designated location throughout construction activities.

- **Disturbance Coordinator.** A noise disturbance coordinator shall be designated by the contractor. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator shall determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures warranted to correct the problem be implemented. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.
- **Construction Activities.** Construction activities with the potential to generate noise shall only occur Monday through Saturday between the hours of 7:30 AM and 6PM.
- **Monitoring Action.** Prior to issuance of grading permits, the project proponent shall submit building and grading plans that show the appropriate construction equipment noise reduction measures to the County of Monterey Planning Department. Compliance shall be monitored by County Building Inspectors.

Significance After Mitigation

Mitigation Measure N-1 would ensure that noise mitigation is appropriately applied during construction to reduce impacts to nearby sensitive receptors. Therefore, implementation of mitigation would reduce construction noise impacts to a less than significant level.

Threshold 2:	Would the project result in an exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

IMPACT N-2 PROJECT CONSTRUCTION WOULD INTERMITTENTLY GENERATE GROUNDBORNE VIBRATION ON AND ADJACENT TO THE SITE. THIS MAY AFFECT RECEPTORS NEAR THE PROJECT SITE, BUT WOULD NOT CREATE EXCESSIVE LEVELS OF VIBRATION THAT COULD CAUSE STRUCTURAL DAMAGE OR DISTURB SLEEP AT NEARBY SENSITIVE RECEPTORS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Construction of the project could potentially increase groundborne vibration on the project site, but construction effects would be temporary, occurring for approximately nine months. Project construction would not involve pile driving, blasting, or similar types of construction techniques that create high levels of vibration.

The primary vibratory source during construction would be large bulldozers and loaded trucks. Table 29 identifies various vibration velocity levels for the types of construction equipment that would operate at the project site during construction. The table also shows the estimated vibration velocity levels at the nearest sensitive receptor, based on the vibration attenuation calculations provided by the FTA (2006). As described above, the nearest sensitive receptor to the project site are the mixed-used residences, which would be located approximately 80 feet from construction activities, based on the assumption that construction activities would occur on average 50 feet internal from the site boundary. The next closest sensitive receptor is the lodging facility, which is located approximately 30 feet farther from the construction activities than the mixed used residences receptor, which would result in further reduction of the vibration levels shown in Table 29.

Table 29 Vibration Levels for Construction Equipment

Equipment	Vibration Decibels (VdB)	
	50 feet from Equipment*	Mixed-Used Residences 80 feet from Equipment
Hoe Ram	78	72
Large Bulldozer	78	72
Loaded Trucks	77	70
Jackhammer	70	64
Small Bulldozer	48	42

*Source: FTA 2006

As shown in Table 29, vibration levels from project construction at the nearest sensitive receptor would not exceed the FRA recommended 72 VdB threshold for residences and buildings where people normally sleep. Vibration also would not exceed 95 VdB, the vibration level which would damage extremely fragile historic buildings at either sensitive receptor. In addition, in compliance with County General Plan Policy S-7.9, construction equipment would operate only during daytime hours, and thus would not generate vibration during the nighttime, when most people are typically sleeping.

Pursuant to Mitigation Measure GEO-2a, as described in Section 4.5, *Geology and Soils*, site preparation may include vibro replacement stone column techniques to reduce liquefaction potential. These techniques are typically performed with a vibrating column suspended from a crane. Vibro replacement stone column techniques would be conducted during daytime hours. Pursuant with Mitigation Measure GEO-2a, vibro replacement stone column techniques would not be performed within 20 feet of existing structures to avoid structural damage. Thus, vibration impacts resulting from construction of the proposed project, including vibro replacement stone column techniques would be less than significant.

Mitigation Measures

As impacts would be less than significant, no mitigation is required. Mitigation Measure GEO-2 would require the minimization of construction-related vibration impacts of ground improvement techniques to be located no closer than 20 feet of any existing, adjacent structures or fuel tanks; this would further reduce the less-than-significant impact.

Significance After Mitigation

Impacts would be less than significant.

Threshold 3:	Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

IMPACT N-3 OCCUPANTS OF EXISTING NEARBY SENSITIVE RECEPTORS WOULD NOT EXPERIENCE ROADWAY NOISE LEVEL INCREASES EXCEEDING APPLICABLE THRESHOLDS AS A RESULT OF PROJECT-GENERATED TRAFFIC. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Implementation of the proposed project would result in an increase in the average number of daily vehicle trips along area roadways, including SR 1, Carmel Valley Road, Rio Road, and Carmel Rancho Boulevard. The project would generate an estimated 3,833 gross daily trips, with 92 trips in the AM peak hour and 337 trips in the PM peak hour, as stated in the traffic study prepared for the project (KHTE 2017). The traffic study is included in Appendix G. In addition to generating new trips, the project is expected to redistribute existing trips, resulting in a decrease in traffic volumes in some intersections and an increase in others (see Section 4.8, *Transportation and Circulation*).

Table 30 summarizes roadway noise levels at sensitive receptors near the project site under existing conditions and existing with project conditions as modeled using the HUD DNL Calculator. The project would result in a 0.5 dBA Ldn decrease at Rio Road between Via Nona Marie and Carmel Center Place, and a 0.6 dBA Ldn increase along Rio Road west of SR 1 relative to existing conditions; the decrease is a result of expected trip redistribution resulting from the project (see Section 4.8, Transportation and Circulation for further details). As described in Section 4.13.4(a), an increase in traffic noise that does not exceed 1 dBA on a roadway with existing noise levels of 65-74 dBA Ldn would be less than significant. Based on the traffic volumes projected for this project, there would be no discernable change in traffic noise resulting from the project, and traffic noise impacts would be less than significant.

Table 30 Significance of Changes in Operational Roadway Noise Exposure

Roadway	Noise Exposure (dBA Ldn)		Change (dBA Ldn)	Exceeds Threshold?[1]
	Existing	Existing + Project		
Rio Road between Via Nona Marie and Carmel Center Place	66.3	65.8	-0.5	No
Rio Road to the west of Highway 1	70.0	70.6	0.6	No

See Appendix I for HUD DNL Calculator worksheets.

[1] See Table 26 for roadway noise increase thresholds provided by the FTA.

Mitigation Measures

No mitigation is required.

Threshold 3:	Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

IMPACT N-4 PROJECT OPERATION WOULD INTRODUCE NEW NOISE SOURCES TYPICAL OF PROPOSED CONVENIENCE MARKET/GROCERY STORE AND RETAIL USES TO THE SITE. NEW NOISE SOURCES WOULD BE SIMILAR TO THOSE OF EXISTING ADJACENT USES AND WOULD NOT RESULT IN A NOISE ENVIRONMENT INCOMPATIBLE WITH EXISTING USES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The proposed project would result in development of retail uses on an infill site adjacent to other retail and commercial properties, including a shopping center, gas station, and offices. The project would introduce new noise sources to the site similar to noises found at the adjacent shopping center and gas station, such as parking lot noises (car door slams, conversations, beeping), noises from delivery/loading trucks, and HVAC systems, which typically generate a noise level of 60-70 dBA Leq at 15 feet (Illington & Rodkin 2009). Thus, the project would not introduce any machine, mechanism, or device that would generate a noise level of 85 dBA at 50 feet in accordance with MMC Section 10.60.030.

The project would include a solid retaining wall along its western boundary, which abuts the lodging use on the adjacent property and blocks the project site from the its line of sight; a solid wall that breaks the line-of-sight typically reduces noise levels by 5 to 10 dBA (FTA 2006). This design feature would mitigate potential noise impacts to hotel units from loading dock activities along the northern side of the grocery store and other vehicle traffic along the western boundary. Although operating hours are not known, based on the hours of other similar specialty markets, it is assumed the proposed convenience market/grocery store and other retail uses on the project site would operate between the hours of 8 AM and 9 PM. Consequently, the project would not generate noise levels exceeding 45 Leq dBA or a maximum dBA of 65 between the hours of 10 PM to 7 AM, in accordance with MMC Section 10.60.040. Therefore, the project's operational noise levels would not interfere with the sleep of motel guests and nearby residents, and would not substantially alter the existing noise environment. Impacts would be less than significant and no mitigation is required.

Mitigation Measures

No mitigation is required.

4.7.5 Cumulative Impacts

The geographic extent for the analysis of cumulative stationary noise impacts is generally limited to areas within 0.5 mile of the proposed project. This geographic extent is appropriate for considering potential cumulative noise impacts because the project's noise impacts are localized and site vicinity-specific. Beyond this distance, intermittent noise may be briefly audible and steady construction noise from the proposed project would generally dissipate such that the level of noise would reduce to below the County's maximum noise standards and/or blend in with the background noise level.

As listed in Table 5, Cumulative Projects List, there is one future development proposed (but not yet approved) within a half mile of the project site, the Carmel Affordable Housing Project, which is located approximately 400 feet northeast of the project site on the east side of Val Verde Drive, south of Carmel Valley Road. Additionally, the Rancho Canada Village Project, located approximately 480 feet east of the project site, has been approved but is currently in litigation and not yet constructed. There are a number of mixed-use residences that would potentially be exposed to

construction noise from both of these projects and the proposed project, if project construction were to occur simultaneously. These residences are located approximately midway from the two project sites at a distance of 1,000 feet from each site. At such a distance, the maximum construction noise levels from the proposed project would attenuate to approximately 52 dBA CNEL; construction noise levels for the Carmel Affordable Housing Project and Rancho Canada Village Project would likely be in a similar range. Combined, the resulting cumulative noise level could potentially reach approximately 55 dBA CNEL (snapfour.com 2017). However, these are likely conservative estimates as they do not account for attenuating effects of intervening structures and topography, nor do they account for incorporation of mitigation by any of the projects. The estimate is also likely conservative because the Carmel Affordable Housing Project is not yet approved and the Rancho Canada Village Project is currently under litigation, and construction timing is unknown. Cumulative construction noise levels would fall within the normally acceptable or conditionally acceptable range for residential uses. Therefore, cumulative impacts resulting from project construction noise would be less than significant.

The Carmel Affordable Housing Project and the Rancho Canada Village Project would involve residential development, which is not typically associated with loud operational noise sources and both projects would have a less than significant impact due to operational noise. Therefore, there would be no significant cumulative impact to sensitive receptors exposed to noise from both project sites and the proposed project site.

Table 31 summarizes roadway noise levels at sensitive receptors near the project site under existing, cumulative (without project), and cumulative with project conditions, as modeled using the HUD DNL Calculator.

Table 31 Significance of Changes in Operational Roadway Noise Exposure

Roadway	Noise Exposure (dBA Ldn)			Change (dBA Ldn)	Noise Increase Threshold[1] (dBA Ldn)	Exceeds Threshold? (Existing/ Cumulative)
	Existing	Cumulative	Cumulative + Project			
Rio Road between Via Nona Marie and Carmel Center Place	66.3	66.9	66.4	0.1	1	No
Rio Road to the west of Highway 1	70.0	70.9	71.1	1.1	1	**Yes**

[1] See Table 26 for roadway noise increase thresholds provided by the FTA.

As shown in Table 32, traffic noise levels would increase by 0.1 dBA along Rio Road between Via Nona Marie and Carmel Center Place with the additional traffic from the proposed project and other cumulative projects. As described in Section 4.13.4(a), an increase in traffic noise exceeding 1 dBA on a roadway with existing noise levels of 65-74 dBA Ldn would be significant. Because the increase along this segment of road would be 0.1 dBA and well below the threshold, the cumulative impact would be less than significant.

As shown in Table 31, traffic noise levels along Rio Road to the west of Highway 1 would increase by 1.1 dBA compared to existing conditions. This increase would exceed the 1 dBA threshold and would be a significant cumulative impact. As shown in the table, cumulative noise levels on this segment of road without the project would be 70.9, an increase of 0.9, which is below the 1 dBA threshold.

Therefore, because the additional noise from project-related traffic trips would increase noise levels over the threshold, the proposed project's impact contribution would be cumulatively considerable.

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