DOWNTOWN MORGAN HILL PARKING STRUCTURE AND SUNSWEET MIXED USE DEVELOPMENT PROJECT ENVIRONMENTAL NOISE ASSESSMENT MORGAN HILL, CALIFORNIA

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INTRODUCTION

This report presents the results of the environmental noise assessment completed for the Downtown Morgan Hill Parking Structure and Sunsweet Mixed Use Development project proposed in Morgan Hill, California. The proposed project would construct a three-story parking structure with 245 to 275 parking spaces or a three-story parking structure with underground parking and a mixed use development with up to 48 condominiums. The project would be constructed within the City of Morgan Hill (City) Downtown Specific Plan Area.

This report evaluates the project's potential to result in significant noise impacts with respect to applicable CEQA guidelines. The report is divided into two sections. The Setting Section provides a brief description of the fundamentals of environmental noise, summarizes applicable regulatory criteria, and discusses the results of the ambient noise monitoring survey completed to document existing noise conditions. The Impacts and Mitigation Measures Section evaluates noise impacts resulting from the project in terms of noise and land use compatibility, temporary noise level increases resulting from project construction, and permanent noise level increases resulting from the operation of the project.

SETTING

Fundamentals of Environmental Noise

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. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. 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* (*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.

Fundamentals of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One method is the *Peak Particle Velocity* (*PPV*). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. In this report, a PPV descriptor with units of mm/sec or in/sec is used to evaluate construction generated vibration for building damage and human complaints. Table 3 displays the reactions of people and the effects on buildings that continuous vibration levels produce.

The annoyance levels shown in Table 3 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related ground-borne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied

to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

Railroad and light-rail operations are potential sources of substantial ground vibration depending on distance, the type and the speed of trains, and the type of railroad track. People's response to ground vibration has been correlated best with the velocity of the ground. The velocity of the ground is expressed on the decibel scale. The reference velocity is 1×10^{-6} in/sec RMS (Root-Mean-Square), which equals 0 VdB, and 1 in/sec equals 120 VdB. Although not a universally accepted notation, the abbreviation "VdB" is used in this document for *vibration decibels* to reduce the potential for confusion with sound decibels.

Typical background vibration levels in residential areas are usually 50 VdB or lower, well below the threshold of perception for most humans. Perceptible vibration levels inside residences are attributed to the operation of heating and air conditioning systems, door slams, and foot traffic. Construction activities, train operations, and street traffic are some of the most common external sources of vibration that can be perceptible inside residences. Table 4 illustrates some common sources of vibration and the association to human perception or the potential for structural damage.

TABLE 1 Definition of Acoustical Terms Used in this Report

Term	Definition
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 micro Pascals.
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 sounds 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.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, 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.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
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.

TABLE 2 Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	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
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), California Department of Transportation, November 2009.

TABLE 3 Reaction of People and Damage to Buildings From Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential dwellings such as plastered walls or ceilings
0.5	Severe - Vibrations considered unpleasant	Threshold at which there is a risk of damage to newer residential structures

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

TABLE 4 Typical Levels of Groundborne Vibration

Human/Structural Response	Velocity Level, VdB	Typical Events (50-foot setback)
Threshold, minor cosmetic damage	100	Blasting, pile driving, vibratory compaction equipment
		Heavy tracked vehicles (Bulldozers, cranes, drill rigs)
Difficulty with tasks such as reading a video or computer screen	90	
		Commuter rail, upper range
Residential annoyance, infrequent events	80	Rapid transit, upper range
Residential annoyance, occasional events		Commuter rail, typical Bus or truck over bump or on rough roads
Residential annoyance, frequent events	70	Rapid transit, typical
Approximate human threshold of perception to vibration		Buses, trucks and heavy street traffic
	60	
		Background vibration in residential settings in the absence of activity
Lower limit for equipment ultra-sensitive to vibration	50	

Source: Transit Noise and Vibration Impact Assessment, US Department of Transportation Federal Transit Administration, May 2006.

Regulatory Background - Noise

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 Morgan Hill. These documents are implemented during the environmental review process to limit noise exposure at existing and proposed noise sensitive land uses. Applicable planning documents include: (1) the California Environmental Quality Act (CEQA) Guidelines, Appendix G, (2) the City of Morgan Hill General Plan, and (3) the City of Morgan Hill Municipal Code. Regulations, plans, and policies presented within these documents form the basis of the significance criteria used to assess project impacts.

State CEQA Guidelines. CEQA contains guidelines to evaluate the significance of effects of environmental noise attributable to a proposed project. CEQA asks the following applicable questions. Would the project 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, exposure of people residing or working in the project area to excessive noise levels.

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

Of these guidelines, items (a), (b), (c), and (d) are applicable to the proposed project. Guidelines (e) and (f) are not applicable because the project is not located in the vicinity of public airports or private airstrips.

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}). 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.

Public Health and Safety Element of the City of Morgan Hill General Plan. The Public Health and Safety Element of the General Plan sets forth noise and land use compatibility standards to

guide development, and noise goals and policies to protect citizens from the harmful and annoying effects of excessive noise. Parking structures are not noise-sensitive and are not subject to noise and land use compatibility thresholds. Multi-family residential land uses are considered normally acceptable in noise environments up to 65 dBA L_{dn}. Policies established in the Noise Element of the General Plan that are applicable to the proposed project include:

7a. New development projects shall be designated and constructed to meet acceptable exterior noise level standards, as follows:

- The maximum exterior noise level of 60 dBA L_{dn} shall be applied in residential areas where outdoor noise is a major consideration (e.g., backyards in single family housing developments and recreation areas in multi-family housing projects). Where the city determines that providing an L_{dn} of 60 dBA or lower cannot be achieved after the application of reasonable and feasible mitigation, an L_{dn} of 65 dBA may be permitted.

- Indoor noise levels should not exceed an L_{dn} of 45 dBA in new residential housing units.

- Noise levels in a new residential development exposed to an exterior L_{dn} of 60 dBA or greater should be limited to a maximum instantaneous noise level (e.g., trucks on busy streets, train warning whistles) in bedrooms of 50 dBA. Maximum instantaneous noise levels in all other habitable rooms should not exceed 55 dBA. The maximum outdoor noise level for new residences near the railroad shall be 70 dBA L_{dn}, recognizing that train noise is characterized by relatively few loud events.

7b. The impact of a proposed development project on existing land uses should be evaluated in terms of the potential for adverse community response based on significant increase in existing noise levels, regardless of compatibility guidelines.

7e. Noise level increases resulting from traffic associated with new projects shall be considered significant if: a) the noise level increase is 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or b) the noise level increase is 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater.

7f. Noise levels produced by stationary noise sources associated with new projects shall be considered significant if they substantially exceed ambient noise levels.

7g. Noise levels produced by other noise sources (such as ball fields) shall be considered significant if an acoustical study demonstrates they would substantially exceed ambient noise levels.

Morgan Hill Municipal Code. Chapter 8.28, Section 8.28.040 of the Health and Safety section of the Municipal Code prohibits construction activities between the hours of eight p.m. and seven a.m., Monday through Friday and between the hours of six p.m. and nine a.m. on Saturday. Construction activities may not occur on Sundays or federal holidays. However, public work projects are exempt from this section and the public works director shall determine the hours of construction for public works projects.

Chapter 18.48, Section 18.48.075 of the Zoning Code establishes noise level limits that are enforced at the property line. "At the lot line of all uses specified in Section 18.48.010, the maximum sound generated by any use shall not exceed seventy to seventy-five db(A) when adjacent uses are industrial or wholesale uses. When adjacent to offices, retail, or sensitive industries, the sound level shall be limited to sixty-five to seventy db(A). When uses are adjacent or contiguous to residential, park, or institutional uses, the maximum sound level shall not exceed sixty db(A). Excluded from these standards are occasional sounds generated by the movement of railroad equipment, temporary construction activities, or warning devices."

Regulatory Criteria - Vibration

The City of Morgan Hill has not identified quantifiable vibration limits that can be used to evaluate the compatibility of land uses with vibration levels experienced at a project site. Although there are no local standards that control the allowable vibration in a new residential development, the U.S. Department of Transportation has developed vibration impact assessment criteria for evaluating vibration impacts associated with transit projects[1]. The Federal Transit Administration (FTA) has proposed vibration impact criteria based on maximum overall levels for a single event. The impact criteria for groundborne vibration are shown in Table 5. Note that there are criteria for frequent events (more than 70 events of the same source per day), occasional events (30 to 70 vibration events of the same source per day), and infrequent events (less than 30 vibration events of the same source per day).

[1]U.S. Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006, FTA-VA-90-1003-06.

TABLE 5 Groundborne Vibration Impact Criteria

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 µinch/sec, RMS)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1 Buildings where vibration would interfere with interior operations.	65 VdB[4]	65 VdB[4]	65 VdB[4]
Category 2 Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3 Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

Notes:

1. "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
2. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
3. "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.
4. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research should always require detailed evaluation to define the acceptable vibration levels. Ensuring low vibration levels in a building requires special design of HVAC systems and stiffened floors.

Source: U.S. Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006, FTA-VA-90-1003-06.

Existing Noise Environment

Project Location

The City proposes two different location options for construction of the proposed project:

- City-Owned Depot Street Site (City-owned APNs 726-13-047 and 726-14-061)
- Sunsweet Site (APN 726-13-032, -033, -042, -043, and -044)

City-Owned Depot Street Site. The parking structure would be constructed on the east side of Depot Street between East Second and East Fifth Streets in the City of Morgan Hill. The site is approximately 1.5 acres and is bounded by Caltrain/Union Pacific Railroad (UPRR) tracks to the north, Depot Street to the south, commercial and office uses to the west, and a vacant lot (under construction) to the east. The structure would include a pedestrian walkway at the terminus of East Third Street to provide connection to the existing railroad crossing and Caltrain station. The parking structure would be accessed from Depot Street. The project proposes to demolish an existing restaurant building and would include tenant relocation from this building.

Sunsweet Site. The site is approximately 2.7 acres and is bordered by Depot Street to the north, East Third Street to the west, East Fourth Street to the east, and commercial uses and Monterey Road to the south. The project would include the demolition of four attached warehouses, one weigh station, and an older structure that was formerly used as an office building. The project would also include the construction of a three-story structure and a mixed use development with landscaping. Vehicles would access the structure and the off-street residential parking via driveways on East Fourth Street; no vehicle access would occur from East Third or Depot Streets. Approximately 11,400 square feet of one and/or two story commercial and office space would also be constructed (at grade) at the site. The commercial space would include retail and restaurant uses.

Noise Monitoring Survey

Noise monitoring was performed between February 12, 2014 and February 14, 2014 in order to quantify existing ambient noise levels at representative receptor locations in the vicinity of the two sites proposed for development. The noise monitoring survey included three long-term noise measurements (LT-1, LT-2, and LT-3) and two short-term measurements (ST-1 and ST-2), as shown in Figure 1. The existing noise environment at the site and in the project vicinity results primarily from vehicular traffic and railroad trains.

Long-term noise measurement LT-1 was made at the southeast corner of the Sunsweet site, approximately 45 feet from the center of Depot Street and 200 feet from the UPRR tracks. Noise levels measured at this site were primarily the result of traffic along Depot Street and intermittent railroad train events. Hourly average noise levels ranged from 58 to 78 dBA L_{eq} during the day, and from 40 to 71 dBA L_{eq} at night. The L_{dn} at this location was 67 dBA on Thursday, February 13, 2014. The daily trends in noise levels at LT-1 are shown on Figures 2-4. As shown on these figures, the highest maximum instantaneous noise levels ranged from 95 to 105 dBA L_{max} and occurred primarily during evening and nighttime hours. These maximum instantaneous noise levels were likely the result of railroad train warning whistles.

The second long-term noise measurement was made at the southwest corner of the Sunsweet site, approximately 20 feet from the center of 4th Street opposite the Morgan Hill Grange building. Noise levels measured at this site were primarily the result of traffic along Monterey Road, 4th Street, and Depot Street, as well as intermittent railroad train events. Hourly average noise levels ranged from 55 to 63 dBA L_{eq} during the day, and from 38 to 61 dBA L_{eq} at night. The L_{dn} at this location was 60 dBA on Thursday, February 13, 2014. Maximum instantaneous noise levels typically ranged from 75 to 85 dBA L_{max}. The daily trends in noise levels at LT-2 are shown on Figures 5-7.

Long-term noise measurement LT-3 was made in front of #50 2nd Street. Noise levels measured at this site were primarily the result of traffic along Monterey Road, 2nd Street, and Depot Street, as well as intermittent railroad train events. Hourly average noise levels ranged from 56 to 74 dBA L_{eq} during the day, and from 42 to 67 dBA L_{eq} at night. The L_{dn} at this location was 63 dBA on Thursday, February 13, 2014. Maximum instantaneous noise levels typically ranged from 85 to 95 dBA L_{max}. The daily trends in noise levels at LT-3 are shown on Figures 8-10.

Short-term noise measurements ST-1 and ST-2 were made during the 11:00 a.m. hour on Friday, February 14, 2014. ST-1 was made in front of #57 3rd Street, approximately 300 feet west of Depot Street. The average noise level measured at site ST-1 was 51 dBA L_{eq} and the maximum instantaneous noise level was measured to be 64 dBA L_{max}. Site ST-2 was in front of #17457 Depot Street. The average noise level measured at site ST-2 was 61 dBA L_{eq} and the maximum instantaneous noise level was measured to be 73 dBA L_{max}.

Figure 1 Noise Measurement Locations

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 generate excessive groundborne vibration levels, or if ambient noise levels at sensitive receptors would be substantially increased over a permanent, temporary, or periodic basis. The following criteria were used to evaluate the significance of environmental noise resulting from the project:

- 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 General Plan or Municipal Code.

- A significant impact would be identified if the construction of the project would expose persons to excessive vibration levels. Groundborne vibration levels exceeding 0.3 in/sec PPV would have the potential to result in "architectural" damage to normal buildings (assumed to be structurally sound) or lower if highly vibration sensitive uses are identified adjoining the site. A significant impact would also be identified if the project would expose persons to vibration levels that would exceed the FTA criteria for groundborne vibration.

- A significant impact would be identified if traffic generated by the project would substantially increase noise levels at sensitive receptors in the vicinity. A substantial increase would occur if: a) the noise level increase is 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or b) the noise level increase is 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater.

- A significant noise impact would be identified if construction related noise would temporarily increase ambient noise levels at sensitive receptors. Hourly average noise levels exceeding 60 dBA L_{eq}, and the ambient by at least 5 dBA L_{eq}, for a period greater than one year would constitute a significant temporary noise increase at adjacent residential land uses.

Impact Discussion - City-Owned Depot Street Site

The proposed project on the City-Owned Depot Street site would construct a three-story parking structure with 245 to 275 parking spaces.

Impact 1A: **Generation of Noise Levels.** Parking structures are not considered noise-sensitive, and would be compatible with the ambient noise environment at the site. The project could generate noise levels exceeding the unadjusted Municipal Code noise standards at the nearest land uses, however, project generated noise levels would not exceed existing ambient noise levels. **This is a less than significant impact.**

The parking structure would be constructed on the east side of Depot Street between East Second and East Fifth Streets in the City of Morgan Hill. The site is approximately 1.5 acres and is bounded by Caltrain/ UPRR tracks to the north, Depot Street to the south, commercial and office uses to the west, and a vacant lot (under construction) to the east.
The City of Morgan Hill Zoning Code establishes noise level limits that are enforced at the common property line. "At the lot line of all uses specified in Section 18.48.010, the maximum sound generated by any use shall not exceed seventy to seventy-five db(A) when adjacent uses are industrial or wholesale uses. When adjacent to offices, retail, or sensitive industries, the sound level shall be limited to sixty-five to seventy db(A). When uses are adjacent or contiguous to residential, park, or institutional uses, the maximum sound level shall not exceed sixty db(A). Excluded from these standards are occasional sounds generated by the movement of railroad equipment, temporary construction activities, or warning devices."

Illingworth & Rodkin, Inc. conducted noise measurements near a 4-story parking structure in downtown Petaluma[2]. Noise measurements were made of typical noise generating activities occurring on the various parking levels. At each parking level, a car door was opened and closed several times, the engine was started, and the auto's horn was sounded. The noise sources were generated at the edge of each story and at a parking stall located about 50 feet from the edge. Noise measurements were also made as an auto traveled up and down the parking structure. The sounding of the auto's horn was the nosiest. Maximum instantaneous noise levels, measured about 75 feet from the façade of the structure at ground level, typically ranged from 53-58 dBA. The sounding of the car horn typically ranged from 62-70 dBA.

The City-Owned Depot Street site would be located about 80 feet to the north of the nearest existing single-family residence along Depot Street. The remaining residences in the project vicinity would be about 240 feet or further from the proposed parking structure. Maximum instantaneous noise levels from door slams, engine starts, and circulation would typically range from 53-58 dBA at the nearest residence located 80 feet south of the parking structure, and the sounding of the car horn would typically range from 62-70 dBA. At a distance of 240 feet, maximum instantaneous noise levels would be about 10 dBA lower than those specified above. As demonstrated in the summary of noise data collected at Site LT-1 (Figures 2-4), maximum instantaneous noise levels resulting from traffic and railroad trains regularly exceed 60 dBA, and are typically 70 dBA or greater at existing residential land uses along Depot Street. Maximum instantaneous noise levels resulting from infrequent events such as auto horns, sounded as a warning or because of a vehicle's alarm system, would exceed the 60 dBA limit established in the Municipal Code, but would not exceed ambient maximum instantaneous noise levels. Typically, when ambient noise levels exceed the limits contained in the Municipal Code, the limit is adjusted to equal the ambient. Project-generated noises would be infrequent and would not be expected to cause an increase in hourly average or daily average noise levels at nearby sensitive land uses, as well as would not be expected to exceed existing ambient maximum instantaneous noise levels resulting from local traffic and railroad trains. This would be a less than significant impact.

[2] Environmental Noise Assessment Vallco Fashion Park – North Parking Garage prepared for City of Cupertino by Illingworth & Rodkin, Inc., October 11, 2006.

Impact 2A: **Construction Vibration.** Residences, businesses, and possible historic structures in the vicinity of the project site could be exposed to construction related vibration during the excavation and foundation work of the project, particularly if pile driving is used as a construction method. **This is a significant impact.**

Construction activities at the City-Owned Depot Street site would likely include demolition of existing pavement, site preparation work, excavation, foundation work, and the erection of the parking structure. Removal of the existing pavement may at times produce substantial vibration. Excavation would likely occur and vibratory pile driving of sheet piles could be used around the excavation area as shoring. The type of foundation for the parking structure is not known at this time. Typically, a mat slab foundation or auger cast piles are used as parking structure foundations, both of which are preferable foundation methods for minimizing vibration levels at off-site locations. Impact driven piles, which can produce substantial vibrations, could also be selected as a foundation type.

Table 6 presents typical vibration levels that could be expected from construction equipment operating at a distance of 25 feet from the receptor. Project construction activities such as pile driving, 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. Erection of the parking structure is not anticipated to be a source of substantial vibration with the exception of sporadic events such as the dropping of heavy objects, which should be avoided to the extent possible.

TABLE 6 Vibration Source Levels for Construction Equipment

Equipment		**PPV at 25 ft. (in/sec)**	**Approximate L_v at 25 ft. (VdB)**
Pile Driver (Impact)	upper range	1.158	112
	typical	0.644	104
Pile Driver (Sonic)	upper range	0.734	105
	typical	0.170	93
Clam shovel drop		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2006.

The use of impact or vibratory pile drivers, and to a lesser extent other construction equipment, would require some attention to ensure that structures in the vicinity of the project, especially

any historic buildings within 200 feet from such activities, are sufficiently protected. Impact pile driving, if used, has the potential of generating the highest ground vibration levels and is of primary concern to structural damage, particularly when it occurs within 100 to 200 feet of structures. Jackhammers typically generate vibration levels of 0.035 in/sec PPV and drilling typically generates vibration levels of 0.09 in/sec PPV at a distance of 25 feet. Vibration levels would vary depending on project conditions such as soil conditions, construction methods, and equipment used. At a distance of 50 feet, construction activities other than pile driving would not likely generate vibration levels exceeding the 0.08 in/sec PPV criteria used to assess the potential for cosmetic damage to sensitive historic structures.

In areas where vibration would not be expected to cause cosmetic damage, vibration levels may still be perceptible. However, as with any type of construction, this would be anticipated and it would not be considered significant given the intermittent and short duration of the phases that have the highest potential of producing vibration (pile driving and use of jackhammers and other high power tools). By use of administrative controls, such as notifying neighbors of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with least potential to affect nearby businesses, perceptible vibration can be kept to a minimum and as such would not result in a significant impact with respect to perception.

Due to the unknowns regarding the specific scope of project construction activities, the density of development in the area, and proximity of possible historic structures to the project site, there is a potentially significant impact due to groundborne vibrations from construction, especially if pile driving is used as a construction method. This potential impact ranges from no perceptible vibrations to readily perceptible vibration and vibrations high enough to cause possible damage to structures. If pile driving is used as a construction method, the impact of construction vibrations to old and historic structures within 200 feet of the project site is of greatest concern. If pile driving is not used as a construction method, vibration levels from construction activities would not be expected to cause cosmetic damage to off-site buildings located further than 50 feet from the site.

Mitigation 2A: The following measures are recommended to reduce vibration impacts from construction activities to a less than significant level:

1. Avoid impact pile driving where possible. Drilled piles or slab mats causes lower vibration levels where geological conditions permit their use.

2. A list of all heavy construction equipment to be used for this project and the anticipated time duration of using equipment that has been known to produce high vibration levels (tracked vehicles, vibratory compaction, pile drivers, jackhammers, hoe rams, etc.) shall be submitted by the contractor. This list shall be used to identify equipment and activities that would potentially generate substantial vibration and to define the level of effort required for continuous vibration monitoring.

3. A construction vibration monitoring plan shall be implemented to document conditions prior to, during, and after vibration generating construction activities. All plan tasks shall be undertaken under the direction of a licensed Professional Structural Engineer in the

State of California and be in accordance with industry accepted standard methods. The construction vibration monitoring plan should be implemented to include the following tasks:

a. Identification of the sensitivity of nearby structures to groundborne vibration. Vibration limits should be applied to all vibration-sensitive structures located within 200 feet of the project.

b. Performance of a photo survey, elevation survey, and crack monitoring survey for each structure within 200 feet of pile driving activities and for each structure within 50 feet of other construction activities identified as sources of high vibration levels. Surveys shall be performed prior to any construction activity, in regular interval during construction, and after project completion. The surveys shall include internal and external crack monitoring in structures, settlement, and distress, and shall document the condition of foundations, walls, and other structural elements in the interior and exterior of said structures.

c. Development of a vibration monitoring and construction contingency plan to identify structures where monitoring would be conducted, set up a vibration monitoring schedule, define structure-specific vibration limits, and address the need to conduct photo, elevation, and crack surveys to document before and after construction conditions. Construction contingencies would be identified for when vibration levels approached the limits.

d. At a minimum, vibration monitoring should be conducted during pavement demolition, excavation, and pile driving activities. Monitoring results may indicate the need for more or less intensive measurements.

e. If vibration levels approach limits, suspend construction and implement contingencies to either lower vibration levels or secure the affected structures.

f. Designate a person responsible for registering and investigating claims of excessive vibration. The contact information of such person shall be clearly posted on the construction site.

g. Conduct post-surveys on structures where either monitoring has indicated high levels or complaints of damage has been made. Make appropriate repairs or compensation where damage has occurred as a result of construction activities.

4. The results of all vibration monitoring shall be summarized and submitted in a report shortly after substantial completion of each phase identified in the project schedule. The report will include a description of measurement methods, equipment used, calibration certificates, and graphics as required to clearly identify vibration-monitoring locations. An explanation of all events that exceeded vibration limits will be included together with proper documentation supporting any such claims.

Significance After Mitigation:

The implementation of Mitigation 2A will reduce vibration impacts from construction activities to a less than significant level.

Impact 3A: **Project-Generated Traffic Noise.** Traffic generated by the parking structure proposed at the City-Owned Depot Street site would not result in a substantial permanent noise level increase at noise-sensitive residential land uses in the vicinity. **This is a less than significant impact.**

Per the City of Morgan Hill General Plan, a substantial increase would occur if: a) the noise level increase is 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or b) the noise level increase is 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater. The noise environment at the nearest sensitive receptors exceeds 60 dBA L_{dn}; therefore, a noise impact would be identified where the project would result in a permanent noise level increase of 3 dBA L_{dn} or more.

The 2009 Downtown Specific Plan Master Environmental Impact Report (EIR) considered that a parking structure would be constructed within the downtown area prior to plan build-out. The EIR noise analysis stated the following regarding potential traffic noise impacts along plan area roadways:

> *Based on the intersection turning movement data contained in the Downtown Specific Plan traffic study, additional traffic resulting directly from the Project and Project Alternate would not significantly increase noise levels in and around the Specific Plan project area. Traffic noise levels along the major routes are anticipated to increase by one to two dBA L_{dn} overall as a result of projected development by 2030, including projected Downtown Specific Plan development based on the traffic impact analysis assumptions. The contribution of projected Downtown Specific Plan development to these overall noise increases would be less than one decibel. The Project Alternate would not result in significantly different traffic noise level increases than the Project. Both the Project and Project Alternate would not increase traffic-generated noise levels by greater than three decibels and, therefore, would not result in a significant impact.*

Traffic noise levels attributable to the proposed parking structure or Downtown Specific Plan are not calculated to increase by 3 dBA L_{dn} or more. This is a less than significant impact, as the noise level increase would not be measurable or noticeable and would not exceed the City's significance threshold established to assess the potential for substantial permanent noise increases.

Impact 4A: **Temporary Construction Noise.** Existing noise-sensitive land uses would likely be exposed to construction noise levels in excess of the significance thresholds for a period of more than one year. **This is a significant impact.**

The exact duration of project demolition and construction activities is not known at this time, but given the scope of the project, the general duration of construction activities is anticipated to be

greater than one year. Noise impacts resulting from construction depend on 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 receptors. Construction noise impacts primarily occur when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction noise lasts over extended periods of time. Where noise from construction activities exceeds 60 dBA L_{eq} and exceeds the ambient noise environment by at least 5 dBA L_{eq} at noise-sensitive uses in the project vicinity for a duration of one year or more, the impact would be considered significant.

Construction activities generate considerable amounts of noise, especially during the demolition phase and the construction of project infrastructure when heavy equipment is used. The highest noise levels would be generated during demolition, site preparation, grading, excavation, and foundation construction when heavy equipment operates on site. Table 7 presents the typical range of hourly average noise levels generated by different phases of construction measured at a distance of 50 feet. Hourly average noise levels generated by demolition and construction are about 77 dBA to 89 dBA L_{eq} measured at a distance of 50 feet from the center of a busy construction site. Construction generated noise levels drop off at a rate of about 6 dBA per doubling of distance between the source and receptor. Shielding provided by barriers or structures can provide an additional 5 to 10 dBA noise reduction at distant receivers.

TABLE 7 Typical Ranges of Exterior Noise Levels at 50 Feet from Construction Sites (dBA L_{eq})

	Type of Typical Construction Project							
	Domestic Housing		**Office Building, Hotel, Hospital, School, Public Works**		**Industrial Parking Garage, Religious Amusement & Recreations, Store, Service Station**		**Public Works Roads & Highways, Sewers, and Trenches**	
	I	II	I	II	I	II	I	II
Ground Clearing	83	83	84	84	84	83	84	84
Excavation	88	75	89	79	89	71	88	78
Foundations	81	81	78	78	77	77	88	88
Erection	81	65	87	75	84	72	79	78
Finishing	88	72	89	75	89	74	84	84

I - All pertinent equipment present at site.
II - Minimum required equipment present at site.
Note: These are exterior noise levels at a distance of 50 feet from a construction site assuming different types of construction (e.g. domestic housing, etc.)
Source: United States Environmental Protection Agency, 1973, Legal Compilation on Noise, Vol. 1, p. 2-104.

Per the 2009 Downtown Specific Plan Master EIR, the following controls are assumed to be included in the construction of the project:

- Construction activities shall be limited to the hours between 7:00 a.m. and 8:00 p.m., Monday through Friday, and between the hours of 9:00 a.m. and 6:00 p.m. on Saturdays. No construction activities should occur on Sundays or federal holidays (Consistent with Section 8.28.040 of the Morgan Hill Municipal Code).

- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.

- Locate stationary noise generating equipment (e.g. rock crushers, compressors) as far as possible from adjacent residential receptors.

- Acoustically shield stationary equipment located near residential receptors with temporary noise barriers or recycled demolition materials.

- Utilize "quiet" air compressors and other stationary noise sources where technology exists.

- The contractor shall prepare a detailed construction plan identifying the schedule for major noise-generating construction activities. The construction plan shall identify a procedure for coordination with adjacent residential land uses so that construction activities can be scheduled to minimize noise disturbance.

- Designate a "disturbance coordinator" who would be responsible for responding to any complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., bad muffler, etc.) and will require that reasonable measures be implemented to correct the problem.

Significance After Mitigation:

Implementation of the above measures would reduce construction noise levels emanating from the site, limit construction hours, and minimize disruption and annoyance. However, given the scope of the project, existing noise-sensitive land uses would likely be exposed to construction noise levels in excess of the significance thresholds for a period of more than one year resulting in a significant impact after mitigation.

Impact Discussion - Sunsweet Site

The proposed project on the Sunsweet site would construct a three-story parking structure with underground parking and a mixed use development with up to 48 condominiums.

Impact 1B: **Noise and Land Use Compatibility.** Future noise-sensitive residential uses developed at the project site would be exposed to exterior noise levels exceeding 65 dBA L_{dn}. Interior noise levels would be expected to exceed 45 dBA L_{dn} assuming standard construction methods. **This is a significant impact.**

Generation of Noise Levels. The project could generate noise levels exceeding the unadjusted Municipal Code noise standards at the nearest land uses, however, project generated noise levels would not exceed existing ambient noise levels. **This is a less than significant impact.**

Noise and Land Use Compatibility - Future Exterior Noise Environment

Public Health and Safety Element Policy 7a requires that noise levels be maintained at or below 60 dBA L_{dn} in residential areas where outdoor noise is a major consideration (e.g., backyards in single family housing developments and recreation areas in multi-family housing projects). An L_{dn} of 65 dBA may be permitted where the city determines that providing an L_{dn} of 60 dBA or lower cannot be achieved after the application of reasonable and feasible mitigation.

The future noise environment at the project site is anticipated to increase as a result of additional traffic along local roadways and due to growth in rail service. A review of the site plan shows a small pedestrian paseo and small decks or porches at proposed residential units. Large common outdoor use areas are not proposed. Future noise levels are calculated to reach 75 dBA L_{dn} at small decks or porches proposed nearest Depot Street and the UPRR. Exterior noise levels would be approximately 10 dBA less along the small pedestrian paseo and adjacent decks or porches at proposed residential units along the paseo. Noise levels at the small decks or porches proposed nearest Depot Street and the UPRR would exceed the 60 dBA L_{dn} threshold by up to 15 dBA L_{dn}.

Noise and Land Use Compatibility - Future Interior Noise Environment

The City of Morgan Hill requires that interior noise levels within new residential units not exceed 45 dBA L_{dn}. Interior noise levels in new residential development exposed to an exterior L_{dn} of 60 dBA or greater should also be limited to a maximum instantaneous noise level (e.g., trucks on busy streets, train warning whistles) in bedrooms of 50 dBA L_{max}, and 55 dBA L_{max} in all other habitable rooms.

The worst-case residential noise exposure would occur at residential buildings proposed adjacent to Depot Street and the UPRR. These residential units would be exposed to exterior noise levels of up to 75 dBA L_{dn} in the future. Maximum instantaneous noise levels would be expected to range from 95 to 105 dBA L_{max}. In buildings of typical construction, with the windows partially open, interior noise levels are approximately 15 dBA lower than exterior noise levels. With the

windows closed, standard residential construction typically provides 20 to 25 decibels of exterior to interior noise reduction.

In exterior noise environments of 60 dBA L_{dn} or less, standard construction methods are normally sufficient to reduce noise levels within residential units to 45 dBA L_{dn}. Where exterior noise levels range from 60 to 65 dBA L_{dn}, the inclusion of adequate forced air mechanical ventilation is often the method selected to reduce interior noise levels to acceptable levels by closing the windows to control noise. Where exterior noise levels would exceed 65 dBA L_{dn}, forced-air mechanical ventilation systems and sound-rated construction methods are normally required. Such methods or materials may include a combination of smaller window and door sizes as a percentage of the total building façade facing the noise source, sound-rated windows and doors, sound rated exterior wall assemblies, and mechanical ventilation so windows may be kept closed at the occupant's discretion.

Generation of Noise Levels

As noted previously, the City of Morgan Hill Zoning Code establishes noise level limits that are enforced at the common property line. "At the lot line of all uses specified in Section 18.48.010, the maximum sound generated by any use shall not exceed seventy to seventy-five db(A) when adjacent uses are industrial or wholesale uses. When adjacent to offices, retail, or sensitive industries, the sound level shall be limited to sixty-five to seventy db(A). When uses are adjacent or contiguous to residential, park, or institutional uses, the maximum sound level shall not exceed sixty db(A). Excluded from these standards are occasional sounds generated by the movement of railroad equipment, temporary construction activities, or warning devices."

The Sunsweet site, including the proposed parking structure, is bordered by Depot Street to the north, East Third Street to the west, East Fourth Street to the east, and commercial uses and Monterey Road to the south. The nearest sensitive land uses are residences along 4th Street and 3rd Street, at distance of approximately 50 feet and 75 feet from the project site, respectively.

Maximum instantaneous noise levels from door slams, engine starts, and circulation would typically range from 57-62 dBA at the nearest residence located 50 feet from the parking structure, and the sounding of the car horn would typically range from 66-74 dBA at 50 feet. Maximum instantaneous noise levels at 75 feet from the façade of the parking structure would range from 53-58 dBA, and the sounding of the car horn would typically from 62-70 dBA.

As demonstrated in the summary of noise data collected at Site LT-2 (Figures 5-7), maximum instantaneous noise levels resulting from traffic and railroad trains regularly exceed 60 dBA, and are typically 70 dBA or greater at existing residential land uses along 4th Street. Maximum instantaneous noise levels resulting from infrequent events such as auto horns, sounded as a warning or because of a vehicle's alarm system, would exceed the 60 dBA limit established in the Municipal Code, but would not exceed ambient maximum instantaneous noise levels resulting from traffic along 3rd Street, 4th Street, or railroad trains. Typically, when ambient noise levels exceed the limits contained in the Municipal Code, the limit is adjusted to equal the ambient. Project-generated noises would be infrequent and would not be expected to cause an increase in hourly average or daily average noise levels at nearby sensitive land uses, as well as

would not be expected to exceed existing ambient maximum instantaneous noise levels resulting from local traffic and railroad trains. This would be a less than significant impact.

Mitigation Measure 1B:

The following measures shall be included in the design of the project:

- When refining the project's site plan, continue to shield common outdoor spaces with buildings whenever possible. The design level noise goal should be 60 dBA L_{dn} or less for traffic noise and 70 dBA L_{dn} or less for railroad train noise in outdoor use areas where there would be frequent human use and quiet would be of benefit.

- A design-level acoustical analysis shall be required to confirm that the design of residential units is sufficient to reduce interior average noise levels to 45 dBA L_{dn} or lower, and to reduce interior maximum instantaneous noise levels to 50 dBA L_{max} or less in bedrooms, and 55 dBA L_{max} in all other habitable rooms. As part of the design-level acoustical analysis, a qualified acoustical consultant shall review final site plans, building elevations, and floor plans prior to construction to calculate expected interior noise levels to determine what, if any, additional noise insulation treatments are necessary. Special building construction techniques (e.g., sound-rated windows and building facade treatments) would be required. These treatments include, but are not limited to, sound rated windows and doors, sound rated wall construction, acoustical caulking, insulation, acoustical vents, etc. Large windows and doors should be oriented away from the railroad where possible. The specific determination of what treatments are necessary will be conducted on a unit-by-unit basis. Results of the analysis, including the description of the necessary noise control treatments, will be submitted to the City along with the building plans and approved prior to issuance of a building permit.

- A suitable form of forced-air mechanical ventilation, as determined by the local building official, shall be provided to units throughout the site, so that windows could be kept closed at the occupant's discretion to control interior noise.

Significance After Mitigation:

Implementation of these measures would reduce noise impacts to outdoor use areas to a less than significant level for many of the proposed residential units. However, even with incorporation of these mitigation measures to the extent feasible, the outdoor spaces for some residential units will continue to be impacted and, therefore, this impact is significant and unavoidable.

Implementation of interior noise control measures would be sufficient to maintain day-night average noise levels within proposed residential units at or below acceptable levels. The incorporation of project-specific noise reduction treatments will reduce the L_{max} noise impact to a less than significant level at some units proposed on site; however, it may not be possible for units adjoining the railroad to meet the interior L_{max} noise standards even with incorporation of feasible and best available methods and, therefore, this impact would be significant and unavoidable.

Impact 2B: **Construction Vibration.** Residences, businesses, and possible historic structures in the vicinity of the project site could be exposed to construction related vibration during the excavation and foundation work of the project, particularly if pile driving is used as a construction method. **This is a significant impact.**

The construction of the mixed-use project on the Sunsweet site would require similar construction equipment and techniques as those analyzed and described under the City-Owned Depot Street site above (Impact 2A). Construction activities associated with the Sunsweet site development scenario would occur within approximately 60 feet of existing residential receptors and immediately adjacent to commercial land uses to the south.

Due to the unknowns regarding the specific scope of project construction activities, the density of development in the area, and proximity of possible historic structures to the project site, there is a potentially significant impact due to groundborne vibrations from construction, especially if pile driving is used as a construction method. This potential impact ranges from no perceptible vibrations to readily perceptible vibration and vibrations high enough to cause possible damage to structures. If pile driving is used as a construction method, the impact of construction vibrations to old and historic structures within 200 feet of the project site is of greatest concern. If pile driving is not used as a construction method, vibration levels from construction activities would not be expected to cause cosmetic damage to off-site buildings located further than 50 feet from the site.

Mitigation 2B: **Implement Mitigation 2A.**

Significance After Mitigation:

The implementation of Mitigation 2A will reduce vibration impacts from construction activities to a less than significant level.

Impact 3B: **Project-Generated Traffic Noise.** Traffic generated by the Sunsweet site development scenario would not result in a substantial permanent noise level increase at noise-sensitive residential land uses in the vicinity. **This is a less than significant impact.**

As noted under Impact 3A, the 2009 Downtown Specific Plan Master EIR considered that a parking structure and residential land uses would be constructed within the downtown prior to plan build-out. The EIR found that additional traffic noise resulting from plan build-out would result in a less than significant impact, as the noise level increase would not be measurable or noticeable and would not exceed the City's significance threshold.

Impact 4B: **Temporary Construction Noise.** Existing noise-sensitive land uses would be exposed to construction noise levels in excess of the significance thresholds for a period of more than one construction season. This is a significant impact.

The construction of the mixed-use project and parking structure on the Sunsweet site would require similar construction equipment and techniques as those analyzed and described under the City-Owned Depot Street site above (Impact 4A). Standard construction noise controls are assumed to be included in the project per the mitigation measures identified in the 2009 Downtown Specific Plan Master EIR. As identified previously, the implementation of these measures would reduce construction noise levels emanating from the site, limit construction hours, and minimize disruption and annoyance. However, given the scope of the project, existing noise-sensitive land uses would likely be exposed to construction noise levels in excess of the significance thresholds for a period of more than one year resulting in a significant impact after mitigation.

Mitigation 4B: **Implement Mitigation 4A.**

Significance After Mitigation:

Implementation of the above measures would reduce construction noise levels emanating from the site, limit construction hours, and minimize disruption and annoyance. However, given the scope of the project, existing noise-sensitive land uses would likely be exposed to construction noise levels in excess of the significance thresholds for a period of more than one year resulting in a significant impact after mitigation.